

ASA 2024



Beth Allison Barr



Francis Collins



Charmaine Royal



Praveen Sethupathy



Brandon Vaidyanathan

ONE BODY, MANY GIFTS: The Diversity of Divine and Human Endeavor

78th Annual Meeting | July 26 - 29, 2024

The Catholic University of America, Washington, DC

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Vicki Best, Executive Vice President
Becky English, Director of Membership and Outreach
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CONTENTS

GENERAL INFORMATION	1
PREMEETING ACTIVITIES	3
PROGRAM SCHEDULE	3
ABSTRACTS OF PLENARIES	8
ABSTRACTS OF CONTRIBUTED PAPERS	12
ABSTRACTS OF POSTERS	30
INDEX OF PRESENTERS	33

COME LET US REASON TOGETHER:
On Truth, Science, Faith, and Trust



Francis Collins

Physician-Geneticist

Former Director of the National Institutes of Health

With response from

Walter Kim

President, National Association of Evangelicals



Saturday, July 27, 2024 @ 7 PM • The Catholic University of America, Washington, DC

This free and public lecture is co-sponsored by the ASA and NAE.

**Congratulations to our VIPs,
Long-Time Members Attendees!**
We appreciate your faithful commitment to the ASA.

61 years

John E Richardson

50 to 56 years

David S Barnes
David A Saunders
Gordon Fish
Paul T Arveson
Dillard W Faries
Sidney Niemeyer
John R Wood

45 to 49 years

Kurt A Wood
Randy D Isaac
Bruce W Schweitzer
Edward B Davis
William M Jordan
Lynn A Braband
Robert Kaita

40 to 44 years

Ronald V Hodges
Timothy P Wallace
Judith A Toronchuk
Keith B Miller
Francis S Collins
Stephen O Moshier

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GENERAL INFORMATION

ASA REGISTRATION is located in the Pryzbyla Center (Pryz). See schedule and locations below.

Thursday: 3:00 PM – 10:00 PM; Pryz, 2nd floor
Friday: 8:15 AM – 10:00 PM; Pryz, 2nd floor until 5:00 PM; Pryz Atrium, 3rd floor at 5:00 PM
Saturday: 8:15 AM – 8:30 PM; Pryz Atrium, 3rd floor
Sunday: 10:30 AM – 9:00 PM; Pryz Atrium, 3rd floor
Monday: 8:15 AM – 2:00 PM; Pryz Atrium, 3rd floor

CAMPUS ATM MACHINE is located in the Pryzbyla Center.

CAMPUS HOUSING Room keys are picked up at and returned to the CUA Information Desk (Pryz, 2nd floor). If you are arriving after 10:00 PM, please call 202-319-5200.

CAMPUS PARKING Parking on campus is limited to the McMahon visitor lot. Parking is either \$2 per hour, self-paid hourly through the Flowbird app or \$10 daily through the University parking portal.

CAMPUS SECURITY Phone number: 202-319-5111.

CAMPUS WI-FI NETWORK Select **CUA guest** from the list of Wi-Fi networks. When your browser launches, scroll to the bottom and click *accept*. You will need to log back in after 10 hours.

CSCA ANNUAL GENERAL MEETING (AGM) will be held Sunday, July 28, 2024, from 6:45 PM to 7:20 PM, in Pryz 323.

EXHIBIT TABLES are located in Pryzbyla Center Atrium, 3rd floor.

Friday: 4:30 PM – 10:00 PM
Saturday: 9:45 AM – 5:00 PM
Sunday: 10:30 AM – 5:00 PM
Monday: 9:45 AM – 11:45 AM

FIELD TRIPS Bus pick up and drop off and Metro gathering in McMahon Parking Lot (front of Pryzbyla Center).

Friday: 9:00 AM – 1:00 PM Great Falls National Park, led by Steve Moshier
Friday: 9:00 AM – 3:00 PM Goddard Space Flight Center, led by Jennifer Wiseman
Friday: 9:00 AM – 1:00 PM Smithsonian National Museum of Natural History, led by Scott Buchanan
Friday: 12:30 PM – 4:30 PM Museum of the Bible, led by Mike Beidler

MEAL MEET-UPS Meal meet-ups will be held in a designated section of the Garvey Hall Dining Room.

Friday: 5:00 PM Dinner Meet-Up: First-Time Attendees
Saturday: 7:30 AM Breakfast Meet-Up: Geologists
7:30 AM Breakfast Meet-Up: Biologists
12:00 PM Lunch Meet-Up: Students and Early Career
12:00 PM Lunch Meet-Up: PSCF Editorial Board
5:00 PM Dinner Meet-Up: AI/Machine Learning
5:00 PM Dinner Meet-Up: Entrepreneurs, Science Writers, and Creation Care Advocates
Sunday: 7:30 AM Breakfast Meet-Up: Engineers
7:30 AM Breakfast Meet-Up: Theologians, Ministers, and Philosophers
12:00 PM Lunch Meet-Up: Spouses
12:00 PM Lunch Meet-Up: Asian attendees
5:00 PM Dinner Meet-Up: CSCA (Canadian Scientific and Christian Affiliation)
Monday: 7:30 AM Breakfast Meet-Up: CWiS (Christian Women in Science)

MORNING WALKS

Meet in front of Pryzbyla Center.

- Saturday: 6:00 AM Morning walk, led by Mike Beidler
- Sunday: 6:30 AM Morning walk, led by John Wood
- Monday: 6:00 AM Morning walk, led by Kristine Johnson

PLENARY SESSIONS

are held in the Pryzbyla Center Great Room AB, 3rd floor.

- Friday: 7:30 PM Praveen Sethupathy, "Why Does Diversity Matter?"
- Saturday: 8:45 AM Charmaine Royal, "Diversity, Unity, Oneness"
- Saturday: 7:00 PM Francis Collins, "Come Let Us Reason Together: On Truth, Science, Faith, and Trust"
- Sunday: 11:00 AM Beth Allison Barr, "'Are Women Human?' A Medieval Catholic Perspective on Modern Evangelical Ideas about Women"
- Monday: 8:45 AM Brandon Vaidyanathan, "The Diversity of Beauty in Science"

POSTER SESSION

will be held Saturday, July 27, 2024, from 2:30 PM to 3:30 PM, in the Pryzbyla Center (Pryz) Gallery, 3rd floor. Winner of the Student Poster Contest will be announced at the Ice Cream Social | InterVarsity Reception.

SOCIALS

- Friday: 8:30 PM Mixer
- Saturday: 8:30 PM Dessert Reception
- Sunday: 9:00 PM Ice Cream Social | InterVarsity Reception

SPORTS

Join us any time on the lawn by the Pryzbyla Center Sunday from 5 PM to 7 PM for a game of softball or volleyball.

STATE OF THE ASA

will be held Sunday, July 28, 2024, from 7:30 PM to 9:00 PM, in the Pryzbyla Center Great Room AB, 3rd floor.

VENDING MACHINES AND WATER BOTTLE FILLING STATIONS

Pryzbyla Center, 1st floor; 1st and 2nd floors, respectfully.

WORKSHOPS

The first three workshops below are being held at the Museum of the Bible in the Scholars Initiative Conference Room.

- Thursday: 9:00 AM AI and Bible Translation
12:15 PM
- Thursday: 1:30 PM AI and Bible Interpretation
4:30 PM
- Friday: 8:30 AM Biblical Perspectives on AI
12:30 PM
- Friday: 9:00 AM -60%: How Perceptions of Faith-Science Conflict Impact Faith Formation Pryz 321
12:00 PM Facilitator: Jennifer Secki Shields
- Friday: 3:00 PM Introduction to the Science-Faith Conversation and the ASA Pryz 321
6:00 PM Facilitators: Steven Contakes and Se Kim

Many thanks to ...

- Program Chairs **Mike Beidler** and **Sy Garte** for their countless hours of preparation.
- Local Arrangements Chairs **Paul Arveson** and **Scott Buchanan** and their assistant, **John Griffin**, for their assistance with field trips and campus arrangements.
- The many **donors** who contributed to the **Student Scholarship Fund**.

THE ASA SPIRIT

Each presenter's beliefs and viewpoints are their own and may not necessarily represent those of the American Scientific Affiliation. The ASA strives to create a safe environment where dialogue can flourish and contrasting ideas can be discussed with courtesy and respect. As such, we encourage presenters, discussants, and members to exhibit intellectual humility in presenting, discussing, and receiving arguments, and thoughtfully consider their responses to new evidence and viewpoints. If there are any specific concerns or questions, participants are welcome to share their concern with an executive team member or board member or through the post-event survey.

PRE-MEETING ACTIVITIES

THURSDAY, 25 JULY 2024		
9:00 AM–12:15 PM	Workshop 1A: AI and Bible Translation Organizers: Mark Graves & Daren Erisman , AI & Faith; Wes Viner , Museum of the Bible	Museum of the Bible, Scholars Initiative Conference Room
1:30 PM–4:30 PM	Workshop 1B: AI and Bible Interpretation Organizers: Mark Graves & Daren Erisman , AI & Faith; Wes Viner , Museum of the Bible	Museum of the Bible, Scholars Initiative Conference Room
3:00 PM–10:00 PM	ASA Meeting and Lodging Registration	Pryzbyla Center (Pryz) 2nd floor
6:00 PM	Retreat for Underrepresented Scientists — Welcome, Dinner, Opening Session Organizers: Hannah Eagleson and Denise-Margaret Thompson	Pryz 327

FRIDAY, 26 JULY 2024		
7:30 AM–8:30 AM	Breakfast	Garvey Hall Dining Room
8:15 AM	ASA Meeting and Lodging Registration	Pryzbyla Center (Pryz) 2nd floor
8:30 AM–12:30 PM	Workshop 1C: Biblical Perspectives on AI Organizers: Mark Graves and Daren Erisman , AI & Faith; Wes Viner , Museum of the Bible	Museum of the Bible, Scholars Initiative Conference Room
9:00 AM–5:00 PM	Retreat for Underrepresented Scientists	Pryz 327
9:00 AM–12:00 PM	Workshop 2: -60%: How Perceptions of Faith-Science Conflict Impact Faith Formation Facilitator: Jennifer Secki Shields	Pryz 321
9:00 AM–1:00 PM	Field Trip 1: Great Falls National Park ¹	Meet in McMahon Parking Lot (front of Pryz)
9:00 AM–3:00 PM	Field Trip 2: Goddard Space Flight Center ¹	Meet in McMahon Parking Lot (front of Pryz)
9:00 AM–1:00 PM	Field Trip 3: Smithsonian National Museum of Natural History ¹	Meet in front of Pryz
12:00 PM–1:30 PM	Lunch	Garvey Hall Dining Room
12:30 PM–4:30 PM	Field Trip 4: Museum of the Bible ¹	Meet in front of Pryz
1:00 PM–6:30 PM	Exhibits Set Up	Pryz Atrium, 3rd floor
1:00 PM–6:30 PM	Posters Set Up	Pryz Gallery, 3rd floor
3:00 PM–6:30 PM	Workshop 3: Introduction to the Science-Faith Conversation and the ASA (includes dinner meet-up) Facilitators: Stephen Contakes* and Se Kim*	Pryz 321

¹Please arrive 15 minutes before departure time.

PROGRAM SCHEDULE

FRIDAY, 26 JULY 2024		
5:00 PM–6:30 PM	Dinner Dinner Meet-Up: First-Time Attendees	Garvey Hall Dining Room Garvey Hall Dining Room
6:30 PM	ASA Meeting and Lodging Registration Opens	Pryzbyla Center (Pryz) Atrium, 3rd floor
7:00 PM–7:30 PM	Welcome, Introductions, Announcements • Janel Curry* , ASA President • Vicki Best , ASA Executive Vice President • Mike Beidler* and Sy Garte* , Program Chairs	Pryz Great Room AB
7:30 PM–8:30 PM	Plenary I Praveen Sethupathy , “Why Does Diversity Matter?” Moderator: Deb Haarsma*	Pryz Great Room AB (8)
8:30 PM–10:00 PM	Mixer	Pryz Patio
10:00 PM	Lodging Registration closes	Pryz Atrium

PLEASE NOTE: Number within the parentheses is the page number for the abstract.

*ASA Fellow

SATURDAY, 27 JULY 2024				
6:00 AM	Morning walk, led by Mike Beidler* ; all are welcome			Meet in front of Pryzbyla Center (Pryz)
7:30 AM–8:30 AM	Breakfast Meet-Ups: Geologists, Biologists —All geologists, biologists are invited			Garvey Hall Dining Room Garvey Hall Dining Room
8:15 AM	ASA Registration Opens			Pryz Atrium
8:15 AM	Devotions Devotional: Chris Barrigar* Worship Leader: Grace Capital City			Pryz Great Room AB
8:45 AM–9:45 AM	Plenary II Charmaine Royal , “Diversity, Unity, Oneness” Moderator: Sy Garte*			Pryz Great Room AB (8)
9:45 AM–5:15 PM	Poster Viewing			Pryz Gallery
9:45 AM–5:00 PM	Exhibit Tables			Pryz Atrium
9:45 AM	Beverage Break			Pryz Atrium
10:15 AM–11:45 AM	I.A. Physical Sciences: Modern Physics and the Nature of Reality —Great Room AB Moderator: Arnold Sikkema*	I.B. Life Sciences: The Emergence of Human Uniqueness —Pryz 323 Moderator: Tony Jelsma*	I.C. Theological Perspectives: Historical Perspectives on Science and Faith —Pryz 327 Moderator: Chris Barrigar*	I.D. Students and Early Career —Great Room C Coordinator: Hannah Eagleson
10:15 AM	Robert Kaita* (12) “Modern Physics and Faith in Things Unseen”	Jay D Johnson (12) “When We Were Few and Had No Words: Tolkien, the Fall, and the Evolution of Language”	E Maynard Moore (12) “John Wesley’s Engagement with the Science of Eighteenth-Century England”	(12–14) Faith and Work for Scientific Careers
10:45 AM	Roger Wiens* (13) “Does Christianity Require Belief in the Supernatural?”	Sophie Lyman (13) “Adam and Eve: A Biblical Account of Hominin Evolution”	Edward B Davis* (13) “Robert Boyle’s Philosophy of Religion”	<i>Cohosted by InterVarsity’s Emerging Scholars Network</i>
11:15 AM	Charles Kankelborg* (14) “On the Statistical Plausibility of Divine Providence”	Paul Carr* (14) “New Technology and Theology for Ecology”	Finney Premkumar (14) “Convergence of the Human and Divine: The Metaphysical Limitations of Science and Its Implications for Theological Reflection”	
12:00 PM–1:00 PM	Lunch Lunch Meet-Ups: Students and Early Career and PSCF Editorial Board			Garvey Hall Dining Room Garvey Hall Dining Room
1:00 PM–2:30 PM	II.A. Life Sciences: Healthcare —Great Room AB Moderator: E Janet Warren*	II.B. Social and Psychological Sciences: Unity and Diversity —Pryz 323 Moderator: Edward B Davis*	II.C. Theological Perspectives: Diverse Theologies of Creation Care —Pryz 327 Moderator: Rebecca Dielschneider*	II.D. President’s Panel: Identity Formation —Great Room C Moderator: Janel Curry*
1:00 PM	Jennifer K Briggs (15) “How Network Theory, Computational Modeling, and Microscopy in the Islet Informs Diabetes Care and Perhaps the Influence of Our Heart Posture and Attitudes on Faith Communication”	Charitie Martino (15) “Diversity of Consciousness: A Consideration of Neurodivergence, Collective Consciousness, and Inter-Brain Homeostasis”	David Larrabee* (15) “Environmental Justice: Our Missing Focus”	(15–17) Identity Formation Panel Panelists: • Jay Medenwaldt • Dwight Schwartz • Bob Kaita*
1:30 PM	Perry Marshall (16) “How to Detect Cancer at Stage Negative One”	Peter Schuurman (16) “Problematizing Both Diversity and Unity through a Canadian Study of Religious Biography: Seeking a Trinitarian Ethic That Offers the Productive Discomfort of Difference as a Reflection of the Grace of God”	Ed Brown (16) “Creation Care as a Gospel Issue: An Opportunity for Scientists”	
2:00 PM	Mark Strand* (17) “Healthy Individuals in Sick Populations: Can Individualism Sustain Healthy Populations?”	David Unander (17) “Race and the Temptations of All-Too-Simple-Categories”	Lowell Bliss (17) “Addressing the Crisis of Discipleship in Climate Action”	

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2:30 PM – 3:30 PM	Poster Session				Pryz Gallery
	<ol style="list-style-type: none"> Timothy Campbell, “Sweating the Small Stuff: Double Your Diversity in One Incredibly Time-Consuming Step”[‡] (30) Soo Mi Lee, “Cellular MicroRNA-31-5p Restricts Oncogenic Human Herpesvirus Lytic Reactivation by Down-Regulating the Host RNA- Binding Protein KHDRBS3”[‡] (30) Chloe Liu, “Identification of Cellular Signatures Predictive of Human Prostate Cancer Progression”[‡] (31) Raegan Melhorn, “Analysis of Anthelmintic Effects of Novel Compounds Using <i>C. elegans</i> as a Model Organism”[‡] (31) Shaina Selles, “The Hidden Diversity of the Gut Phageome: Characterizing Novel Lifecycles and Exploring the Role of Two Phagemids in Context of Bacterial Pathogenicity”[‡] (31) Ethan Sipes, “Faith and Phytotherapy: A Holistic Approach to Mental Health”[‡] (31) Philip Smith, “The Rothermel Foundation: Faith Based Diversity of Ideas” (32) Martin Soliman and Cahleen Shrier, “Psychedelics and Religious Experience”[‡] (32) Ramesh Velupillaimani, “Herbs for Healing: Antibacterial Efficacy of Essential Oils Alone and in Combination with Herbal Extracts” (32) 				
	‡Student posters				
2:30 PM	Refreshment Break				Pryz Atrium
3:30 PM– 5:00 PM	III.A. Social and Psychological Sciences: Reflections on Identity Formation –Great Room AB Moderator: Randy Isaac*	III.B. Environmental Sciences: Diverse Ecological Crises –Pryz 323 Moderator: Sharon M Homer-Drummond	III.C. Life Sciences: Diverse Approaches to Human Well-being –Pryz 327 Moderator: Mark Strand*	III.D. Theological Perspectives: Communicating Science to Diverse Audiences –Great Room C Moderator: Kathryn Applegate*	
3:30 PM	Tony Jelsma* (18) “The Use of Puberty Blockers in Childhood Gender Dysphoria”	Sam Pimentel (18) “There Is No Planet B: A Christian Perspective”	Cahleen Shrier (18) “God, Love, and the Brain: What’s Agape Got to Do with It?”	Josh Owens (18) “Faith and Science Viewpoints amongst Southeastern US Christian Ministers”	
4:00 PM	Dana Oleskiewicz (19) “Culture, Colonialism, and Gender Identity: Reflections from Rwanda”	David R Clements* (19) “Did God Really Say, ‘Serve and Protect the Garden’? Facing the Sins of the Anthropocene”	Jim Painter (19) “Wellness for the Whole Person: Spirit, Soul, and Body”	Dominic Halsmer* (19) “Engaging Scientists and Engineers with the Gospel”	
4:30 PM	John Wood* (20) “Jesus Christ, the Life of the Mind and Professional Formation”	John Elwood (20) “Christianity and the Ecological Crisis: Are We Ready for What’s Ahead?”	Victoria Campbell (20) “Empathy: God’s Providential Care in the Midst of Pain”	Julie Woodman* and Mark Parker* (20) “Lessons Learned in the Christian Classroom: Reducing Fear and Encouraging Friendly Discourse among a Diverse Audience”	
5:00 PM– 6:30 PM	Dinner Dinner Meet-Up: All attendees interested in AI/Machine Learning are invited Dinner Meet-Up: All Entrepreneurs, Science Writers, and Creation Care Advocates are invited				Garvey Hall Dining Room Garvey Hall Dining Room Garvey Hall Dining Room
7:00 PM– 8:15 PM	Plenary III – Public Event Francis Collins,* “Come Let Us Reason Together: On Truth, Science, Faith, and Trust” Respondant: Walter Kim Moderator: Mike Beidler*				Pryz Great Room AB (9) (9)
8:30 PM– 10:15 PM	Dessert Reception				Law School Atrium and Courtyard

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We are grateful for our partnership with the National Association of Evangelicals for co-sponsoring the public lecture.

SUNDAY, 28 JULY 2024				
6:30 AM	Morning walk, led by John Wood* ; all are welcome			Meet in front of Pryzbyla Center (Pryz)
7:30 AM–9:00 AM	Breakfast Breakfast Meet-Ups: Engineers, Theologians —All engineers, theologians, ministers, philosophers are invited			Garvey Hall Dining Room Garvey Hall
9:30 AM–10:30 AM	Worship Service Worship Leader: Grace Capital City Minister: David Anderson , “The Believer’s Super Power”; 1 Corinthians 12:4–6 (NIV) Offering: This year’s offering will support the ministry of the Evangelical Environmental Network			Pryz Great Room AB (11) (11)
10:30 AM–5:00 PM	Poster Viewing Posters taken down before 9:15 PM			Pryz Gallery
10:30 AM–5:00 PM	Exhibit Tables			Pryz Atrium
10:30 AM	Beverage Break			Pryz Atrium
11:00 AM–12:00 PM	Plenary IV Beth Allison Barr , “‘Are Women Human?’ A Medieval Catholic Perspective on Modern Evangelical Ideas about Women” Moderator: Janel Curry*			Great Room AB (10)
12:00 PM–1:00 PM	Lunch Lunch Meet-Up: Spouses, Asian Attendees —All spouses and Asian attendees are invited			Garvey Hall Dining Room Garvey Hall Dining Room
1:15 PM–2:45 PM	IV.A. Engineering and Technology: Artificial Intelligence (AI) and the Human Condition —Great Room AB Moderator: Roger C Wiens*	IV.B. Life Sciences: The Making of Humanity —Pryz 323 Moderator: James Peterson*	IV.C. Environmental Sciences: Creation Care Planning and Sustainability —Pryz 327 Moderator: Steven Hall*	IV.D. Local Chapters and Affiliates Organizational Seminar —Great Room C Coordinator: Dana Oleskiewicz
1:15 PM	Jim Stump (21) “Comparing Views on AI between Theologians and Scientists”	Fred S Cannon* (21) “Does the Bible Say That God Made All Humans from One Man?”	William Jordan* (21) “An Engineer’s Perspective on Creation Care”	(21–23) How Then Shall We Lead? Fostering ASA Affiliates and Chapters Using Techniques of Leadership Development Vicki Best and Dana Oleskiewicz Panelists: <ul style="list-style-type: none"> • Daisy Savarirajan* • Ethan Sipes • Julie Woodman* • Mark Strand*
1:45 PM	Derek C Schuurman* (22) “Chatting with Blaise Pascal: What Would Pascal Say?”	David Siegrist (22) “Transhumanism: Building a New Tower of Babel”	George McKibbon (22) “Landscape Planning and God’s Realm”	
2:15 PM	John Knox (23) “Decentralization and AI: Heavenly Blueprints for Human Flourishing”	Daniel Fernández Soto (23) “A Roadmap for Ethical Reflection on Human Germline Genome Editing”	Joanne M Moyer (23) “Environmental Sustainability in Mennonite Church Canada Member Congregations”	
2:45 PM	Refreshment Break			Atrium
3:15 PM–4:45 PM	V.A. Environmental Sciences: Protecting Biodiversity —Great Room AB Moderator: William Jordan*	V.B. Environmental and Social Sciences: Diverse Educational Approaches to Integrating Faith and Science —Pryz 323 Moderator: David Larrabee*	V.C. Engineering & Technology: Large Language Models and Artificial Intelligence in Healthcare —Pryz 327 Moderator: Perry Marshall	V.D. Social and Psychological Sciences: Inclusivity in Education —Great Room C Moderator: Kristine Johnson*
3:15 PM	Lynn Braband (24) “When Creation Care Gets Messy: Managing Human-Wildlife Conflicts in a ‘Not Yet’ World”	Beth Madison (24) “Bringing the Garden to My Students: Teaching Plant and Soil Science with Faith”	Cyrus P Olsen III (24) “Religion and LLM Design for Healthcare Professionals”	Rebecca Dielschneider* (24) “Inclusive Citation in Pedagogy and Research: An Essential Approach in Christian Higher Education”
3:45 PM	David Campbell* (25) “Tennyson Beats Heraclitus: Generating Freshwater Biodiversity through Stable Habitats in Dynamic Landscapes”	Daisy Savarirajan* (25) “The Missional Model for Integration of Faith and Science: A Key to Kingdom Advancement in Higher Education”	Mark Graves (25) “Compassionate Healthcare AI: Psychological and Theological Perspectives on Motivation, Agency, and Self-Reckoning”	Katharine Hinman (25) “Engaging Climate Science in the Seminary Curriculum”
4:15 PM	Steven Hall* (26) “Conservation and Restoration in Sturgeon Aquaculture and Production Systems”	Vlad Paserin* (26) “Revisiting the Mond Process: The Greenest and Most Creation Care-Sensitive Approach to Battery-Grade Metals Production?”	Thomas Arnold (26) “Compassion, Manipulation, and Attribution: Facilitating Care in Human-AI Interaction”	Sharon Homer-Drummond (26) and Carlos Martinez “A Theory of Change: Ecological Crises and Injustice Are Best Addressed by a Diverse, Inclusive, and Welcoming STEMM Education and Workforce”

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5:00 PM– 7:00 PM	Volleyball and Softball Organized by Dominic Halsmer* and Vicki Best	Lawn by Pryz
5:00 PM– 7:00 PM	Dinner Dinner Meet-Up: Canadian Scientific and Christian Affiliation (CSCA)	Garvey Hall Dining Room Garvey Hall Dining Room
6:45 PM	CSCA Annual General Meeting	Pryz 323
7:30 PM	State of the ASA Presenters: Janel Curry* , Vicki Best , and Mike Beidler* Offering supports the Student Scholarship Fund	Great Room AB
9:00 PM	Ice Cream Social InterVarsity Reception	Pryz Patio

We are grateful for our partnership with InterVarsity’s Emerging Scholars Network (part of Graduate & Faculty Ministries) for co-sponsoring the ice cream social.



MONDAY, 29 JULY 2024				
6:00 AM	Morning walk, led by Kristine Johnson* ; all are welcome			Meet in front of Pryzbyla Center (Pryz)
7:30 AM– 8:30 AM	Breakfast Breakfast Meet-Up: Christian Women in Science (CWIS) —All women are invited			Garvey Hall Dining Room Garvey Hall Dining Room
8:15 AM	Devotions Devotional: Jessica Moerman Worship Leader: Grace Capital City			Pryz Great Room AB
8:45 AM– 9:45 AM	Plenary V Brandon Vaidyanathan , “The Diversity of Beauty in Science” Moderator: Jennifer Wiseman*			Pryz Great Room AB (10)
9:45 AM– 11:45 AM	Exhibit Tables			Pryz Atrium
9:45 AM	Beverage Break			Pryz Atrium
10:15 AM– 11:45 AM	VI.A. Theological Perspectives and Life Sciences: Diverse Approaches to Theodicy —Great Room AB Moderator: Jim Stump	VI.B. Engineering and Technology: Computer Science and the Word of God —Pryz 323 Moderator: Derek C Schuurman*	VI.C. Social and Psychological Sciences: Science and Faith in Strengthening Human Relationships —Pryz 327 Moderator: Dominic Halsmer*	VI.D. Christian Women in Science (CWIS) —Great Room C Host: Rebecca English Moderator: Dana Oleskiewicz
10:15 AM	E Janet Warren* (27) “Generational Sin and Epigenetics”	Richard Denton (27) “Artificial Intelligence and the Bible Translator’s Assistant”	Samuel T Wilkinson (27) “The Evolutionary Origin of the Emotional Rewarding Nature of Personal Relationships: Psychological and Theological Implications”	Beth Allison Barr (27) “Is There Hope for Evangelical Women? A Historical Reflection on the Cost of Patriarchy”
10:45 AM	Andrew P Nosal (28) “Theological Implications of the Existence of ‘Offensive’ Animals and the Ascetical Opportunities They Provide”	Saulo de Oliveira Cantanhêde (28) “Coding the Greek New Testament in an Open Source Environment”	Kimberly Bowal (28) “Being a Body: Embodiment in Faith, Science, and Collectives”	Conversation with (28–29) Beth Allison Barr
11:15 AM	Thomas Patrick Arnold (29) “Sharing with Young Earthers How the Hebrew Bible Does Not Require a Young Earth”	Tim Wallace* (29) “Exploitation of Social Media by Disinformation Campaigns”	Daren Erisman (29) “Generative AI as a Familiar Yet Radical Paradigm-Shift for Christian Churches”	
12:00 PM– 1:00 PM	Lunch			Garvey Hall Dining Room
2:00 PM	Registration table closes. You must be checked out of on-campus lodging by 2:00 PM			Pryz Atrium

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*ASA Fellow

Why Does Diversity Matter? Praveen Sethupathy

“Diversity” is a hot button topic. The word pervades our culture. It evokes strong feelings of varied persuasions. In some circles, it is taken as an axiom that we should always seek diversity. But why? Does it matter?

I will share some reflections from my own personal life, my journey to Christ, and my experience as a scientist in academia about why diversity matters, and how it has shaped the way I mentor and how I do science.

Praveen Sethupathy is Professor of Physiological Genomics and Chair of the Department of Biomedical Sciences at Cornell University. He is also Director of the Cornell Center for Vertebrate Genomics. He leads a research lab focused on genome-scale and molecular approaches to understand physiology and human disease.



Praveen received his BA degree from Cornell University and his PhD in Genomics from the University of Pennsylvania. After completing a post-doctoral fellowship at the National Human Genome Research Institute under the mentorship of NIH Director Francis Collins,

he moved in 2011 to the University of North Carolina at Chapel Hill as an assistant professor in the Department of Genetics. The same year he was selected by Genome Technology as one of the nation’s top 25 rising young investigators in genomics. In 2017, he returned to Cornell University.

Praveen has authored over 145 peer-reviewed publications in scientific journals such as PNAS, Cell, and Science and has served as a reviewer for over 50 different journals. Honors include a faculty merit award for outstanding teaching and mentoring, the prestigious American Diabetes Association Pathway to Stop Diabetes Research Accelerator (which is awarded to only three people per year), and the inaugural Boehringer Ingelheim Award for Excellence in Research Mentorship.

Praveen is an advocate for thoughtful discussion at the interface of science and faith and has served on the advisory board of the Dialogue on Science, Ethics, and Religion in the American Association for the Advancement of Science (AAAS), serves on the Board of BioLogos, is a frequent speaker for the Veritas Forum, and a mentor in the Veritas Faculty Scholars program.

Diversity, Unity, Oneness Charmaine DM Royal

Our world is rife with discord and hostility. The diversity that is a hallmark of our humanness has become a weapon for separation and denigration along virtually every axis of difference. Pleas for unity are echoing across America and around the globe.

Christ calls the Church to both unity and oneness. I will examine these terms—“unity” and “oneness”—from biblical and secular perspectives. Then I will offer insights into how faith in Christ and knowledge of science can inform or reform efforts to bridge the chasms and bring about healing and transformation.

Charmaine Royal obtained a bachelor’s degree in microbiology, a master’s degree in genetic counseling, and a doctorate in human genetics from Howard University. She completed postgraduate training in ethical, legal, and social implications (ELSI) research and bioethics at the National Human Genome Research Institute of the National Institutes of Health, and in epidemiology and behavioral medicine at Howard University Cancer Center.



She is the Robert O. Keohane Professor of African and African American Studies, Biology, Global Health, and Family Medicine and Community Health at Duke University. She directs the Duke Center on Genomics, Race, Identity, Difference and the Duke Center for Truth, Racial Healing & Transformation.

Her research, scholarship, and teaching focus on ethical, social, scientific, and clinical implications of human genetics and genomics, particularly issues at the intersection of genetics and “race.” Her specific interests and primary areas of work include genetics and genomics in African and African Diaspora populations; sickle cell disease and trait; public and professional perspectives and practices regarding “race,” ethnicity, and ancestry; genetic ancestry inference; and genotype-environment interplay. A fundamental aim of her work is to dismantle ideologies and systems of racial hierarchy in science, healthcare, and society.

She serves on numerous national and international advisory boards and committees for government agencies, professional organizations, research initiatives, not-for-profit entities, and corporations.

PLENARY III
SATURDAY, 27 JULY 2024

GREAT ROOM AB
7:00 PM

Come Let Us Reason Together: On Truth, Science, Faith, and Trust

Francis S. Collins

As the COVID-19 pandemic revealed, we have become not just a hyper-partisan society but also a deeply cynical one, distrustful of traditional sources of knowledge and wisdom. Skepticism about vaccines led to the needless deaths of at least 230,000 Americans. “Do your own research” is now a rallying cry in many online rabbit holes. Yet experts aren’t perfect either: they (we) can make mistakes, and institutions can lose their moral compass. So how can we navigate through all this? And how can scientists and people of faith play effective roles in re-anchoring us?

In this talk, I plan to review the four core sources of judgment and clear thinking that have anchored all successful societies down through history, but that are now under significant threat in our divided nation: truth, science, faith, and trust. Drawing on ethics, philosophy, Christian theology, and my own scientific experience from the Human Genome Project and heading the National Institutes of Health, I will try to make a robust case for each of these sources—their reliability, but also their limits. Ultimately, I will argue that they should work together, not separately—and certainly not in conflict.

I will shine a light on how deterioration in our traditional support for these foundational anchors has led to distrust of science and public health, partisanship, emergence of racist messages, denial of climate change, and threats to our democracy. But as followers of Jesus, we are not without hope: God is still sovereign and there are specific actions that each of us can take.

Francis S. Collins is an American physician-scientist. Under his direction, the international Human Genome Project produced the first finished sequence of human DNA in 2003. From 2009 through 2021, he served as the 16th Director of the U.S. National Institutes of Health, the largest supporter of biomedical research in the world. Francis has been awarded the Presidential Medal of Freedom, the National Medal of Science, and the Templeton Prize. He received a doctorate in physical chemistry from Yale University, and a medical degree from the University of North Carolina.



*An atheist in graduate school, Francis became a Christian in medical school and has sought ways to emphasize the harmony of science and faith. He is the author of *The Language of God* (Free Press), *Belief* (Harper One), and *The Language of Science and Faith* (with Karl Giberson, InterVarsity). Francis founded *The BioLogos Foundation* in November 2007 and served as president until August 2009 when his official duties as NIH Director required him to step down. His new book *The Road to Wisdom: On Truth, Science, Faith, and Trust* will be published by Little, Brown in September 2024.*

PLENARY III
SATURDAY, 27 JULY 2024

GREAT ROOM AB
7:00 PM

Respondant

Walter Kim

Walter Kim became the president of the National Association of Evangelicals in January 2020. He previously served as a pastor at Boston’s historic Park Street Church and at churches in Vancouver, Canada, and Charlottesville, Virginia, as well as a campus chaplain at Yale University.



He preaches, writes, and engages in collaborative leadership to connect the Bible to the intellectual and cultural issues of the day. He regularly teaches in conferences and classrooms; addresses faith concerns with elected officials and public institutions; and provides theological and cultural commentary to leading news outlets. He serves on the boards of Christianity Today and World Relief and consults with a wide range of organizations.

Walter received his PhD from Harvard University in Near Eastern Languages and Civilizations, his MDiv from Regent College in Vancouver, and his BA from Northwestern University.

**“Are Women Human?”
A Medieval Catholic Perspective on
Modern Evangelical Ideas about Women**

Beth Allison Barr

On June 12, 2024, a denominational amendment that would have declared a woman serving in any pastoral role as an automatic reason to disfellowship a church from the Southern Baptist Convention almost received the 66% vote it needed to become constitutional. Instead of expressing victory over the failure of this amendment, Baptist women in ministry expressed “grief” that the vote took place at all because it reveals a devaluing of women as compared to men.

Despite claims to the contrary, I argue that modern gender theology arguing “complementary” roles for women and men is rooted in Aristotelian misogyny that was less present in medieval Christianity.

Using the biblical example of the Syrophoenician woman, this lecture compares how medieval sermons preached to ordinary people presented women as compared to the increasingly restrictive complementarian theology now dominating modern evangelicalism. It also will consider the impact of this increasingly narrow gender theology on the dignity and personhood of women.

Beth Allison Barr (PhD, the University of North Carolina at Chapel Hill) is James Vardaman Professor of History at Baylor University in Waco, Texas. She specializes in medieval history, women’s history, and church history.



Beth is the author of USA Today bestseller The Making of Biblical Womanhood: How the Subjugation of Women Became Gospel Truth (Brazos Press, 2021), The Pastoral Care of Women in Late Medieval England (Boydell Press, 2022), and the forthcoming Becoming the Pastor’s Wife: How Marriage Replaced Ordination as a Woman’s Pathway

to Ministry. She is also the author and co-author of numerous articles, including most recently co-editing the volume Regendering the Narrative: Women in the History of Christianity with Church History and Religious Culture (Dec. 2023). Her work has been featured by NPR and The New Yorker, and she has written for Christianity Today, the Washington Post, MSNBC, Premier Christianity, Religion News Service, The Dallas Morning News, Sojourners, and Baptist News Global.

The Diversity of Beauty in Science

Brandon Vaidyanathan

Scientists, traditionally viewed as paragons of rationality, have been critiqued since the Romantic era for reducing and stripping away beauty and mystery from nature. Yet, recent Nobel laureates and renowned scientists have portrayed science as a source of beauty and awe, akin to art. What does beauty mean to scientists and how does it shape the practice of science?

To explore this topic empirically, we conducted the first global study on the role of aesthetics in science, surveying nearly 3,500 physicists and biologists across the US, UK, Italy, and India and conducting more than 200 in-depth interviews with them. We identified three main types of beauty in science.

1. Sensory beauty in nature draws many to become scientists, yet it differs across scientific fields.
2. Useful beauty is the reliance on beauty as a guide to truth, which is a subject of considerable debate among scientists.
3. The beauty of understanding—the joy of uncovering the hidden order underlying phenomena or inner logic of systems—is the most valued aesthetic dimension of science.

Our research suggests that science is fundamentally a quest for the beauty of understanding, which unites the rich variety of aesthetic aspects of science. In our divided times, we have much to learn from scientists about how to value and cultivate this kind of beauty in our lives.



Brandon Vaidyanathan is Associate Professor and Chair of the Department of Sociology and Director of the Institutional Flourishing Lab at The Catholic University of America. He holds bachelor’s and master’s degrees in Business Administration from St. Francis Xavier University in Nova Scotia and HEC Montreal respectively, and a PhD in Sociology from the University of Notre Dame. Brandon’s research examines human flourishing in religious, commercial, and scientific institutions, and has been widely published in peer-reviewed journals.

Brandon is author of Mercenaries and Missionaries: Capitalism and Catholicism in the Global South (Cornell University Press, 2019) and co-author of Secularity and Science: What Scientists Around the World Really Think About Religion (Oxford University Press, 2019). His research has been funded by grants from the John Templeton Foundation, Templeton Religion Trust, and the Lilly Endowment.

Brandon is also Founder of Beauty at Work, a media platform which includes a podcast and YouTube channel that aims to expand our understanding of beauty: what it is, how it works, and why it matters for the work we do. He is currently working on a book co-authored with Bridget Ritz titled The Beauty of Understanding: What Scientists Can Teach Us About the Pleasures of Learning.

WORSHIP
SUNDAY, 28 JULY 2024

GREAT ROOM AB
9:30 AM

David Anderson

Founder and President of Gracism Global and Founder and Senior Pastor of Bridgeway Community Church

David Anderson's global work has brought hope and healing to communities and families in Africa, Asia, Europe, the Middle East, and North America, including work in Ferguson, Missouri, and Baltimore, Maryland, during civil unrest around issues of race and police brutality. He is the bridge-building voice in the nation's capital as host of the daily radio talk show "RealTalk with Dr. David Anderson" on WAVA (105.1 FM).



As the founder and senior pastor of Bridgeway Community Church, he reaches a dynamic, multicultural congregation of over 5,000 weekly attendees on three campuses from more than 60 different nations. These services are viewed online in over 100 countries. In-person campuses are in Columbia, Maryland, and Owings Mills, Maryland.

David Anderson earned his PhD in 2001 from Oxford Graduate School's American Centre for Religion and Society Studies in the US, while studying and defending his essays at Oxford University in England. In 2021, he was awarded the DLitt from Omega Graduate School. He currently serves as the Chancellor of Omega Graduate School, formerly Oxford Graduate School.

He is the author of several books on race and diversity, His most recent books include How to Think Like a Gracist (2018), Be Encouraged—How to Encourage Yourself and Others in Discouraging Times (2022), and, with David Heiliger, the revised and expanded edition of the 2007 award winning Gracism: The Art of Inclusion (IVP, 2023).

MINISTRY SUPPORT

EEN EVANGELICAL ENVIRONMENTAL NETWORK

Jessica Moerman, President and CEO

OUR MISSION

The Evangelical Environmental Network (EEN) inspires, equips, educates, and mobilizes evangelical Christians to love God and others by rediscovering and reclaiming the biblical mandate to care for creation and working toward a stable climate and a healthy, pollution-free world.

OUR VISION

Sharing the fullness of the gospel of Jesus Christ, we envision a world with abundant life for all where people are free from the burden of pollution, all creation flourishes in right relationship, and children have hope and expectation for a healthy, vibrant future.

WHO WE ARE

The EEN is a ministry that educates, inspires, and mobilizes Christians in their efforts to care for God's creation, to be faithful stewards of God's provision, to get involved in regions of the United States and the world impacted by pollution, and to advocate for actions and policies that honor God and protect the environment.

<https://creationcare.org/>

**I.A. PHYSICAL SCIENCES:
MODERN PHYSICS AND
THE NATURE OF REALITY**

Great Room AB

**Modern Physics and
Faith in Things Unseen**
Robert Kaita

The development of quantum mechanics and general relativity are often cited as the greatest achievements in modern physics in the twentieth century. They underlie commonly used devices like global positioning systems and lasers. Only recently, however, have the features of quantum mechanics that are odd compared to classical physics come into public view.

Quantum computing, for example, is supposed to “revolutionize” fields as diverse as cryptography, chemistry, and finance. There has been relatively little popular attention, however, to the radically new way quantum mechanics requires us to understand our world and makes quantum computing possible. Instead of certainty, we are required to determine how probable our explanations are for the phenomena we observe. Furthermore, such probabilities are derived from quantities that are not “observable” in themselves.

There is thus a possible consonance in the kind of belief that is foundational to both modern physics and Christianity. Through simple illustrations, we show how quantum mechanics allows an interpretation of reality beyond the “visible,” and enables us to draw parallels with the way the Bible describes faith in things unseen.

**I.B. LIFE SCIENCES:
THE EMERGENCE OF
HUMAN UNIQUENESS**

Pryz 323

**When We Were Few and
Had No Words:
Tolkien, the Fall, and the
Evolution of Language**
Jay D. Johnson

Some say the Disaster happened at the beginning of the history of our people, before any had yet died. The Voice had spoken to us, and we had listened. The Voice said: ‘Ye are my children. I have sent you to dwell here. In time ye will inherit all this Earth, but first ye must be children and learn. Call on me and I shall hear; for I am watching over you.’

We understood the Voice in our hearts, though we had no words yet. Then the desire for words awoke in us, and we began to make them. But we were few, and the world was wide and strange. Though we greatly desired to understand, learning was difficult, and the making of words was slow.

-- J. R. R. Tolkien

In Tolkien’s little-known “The Tale of Adanel,” he reimagines Genesis 2–3 as a myth of Middle Earth. Although he misses the mark on death before the “original sin,” he nails many scientific details related to the evolution of language, and he raises intriguing science/faith questions regarding the emergence of symbolic thought, “God awareness,” the interpretation of *ha’adam* (the man) and *ha’issah* (the woman) as a people, not a couple, and the metaphor of the earliest humans as children, which agrees with both Irenaeus and current understanding of language evolution.

**I.C. THEOLOGICAL PERSPECTIVES:
HISTORICAL PERSPECTIVES
ON SCIENCE AND FAITH**

Pryz 327

**John Wesley’s Engagement
with the Science of
Eighteenth-Century England**
E. Maynard Moore

How seriously did John Wesley engage with the “science” of his day, and how important was this stance in the cultivation and nourishment of the early Methodist societies? This presentation will demonstrate an affirmative answer to these questions through an examination of the texts in Wesley’s *Survey of the Wisdom of God in Creation* and in his *Arminian Magazine*, published monthly from January 1778 through 1797.

In his introduction to *The Arminian*, in the inaugural issue, Wesley says that he will argue that God’s mercy extends to “all creation” (not just “The Elect”) and that he will illustrate this fact “partly from Scripture, partly from Reason.” Wesley includes in every issue an “extract” from his 5-volume *Survey*, and other writings from the “natural philosophers” of his day, as well as letters and essays from “a very large block of natural history.” Many of these include representations from learned scholars in the Academy of Sciences and the Royal Society; already in vol. 1 there is a favorable reference to the work of his older contemporary Sir Isaac Newton.

The extracts include many descriptive findings from the writings of the “scientists” of his day, including entries on the human eye, muscular anatomy, blood circulation, electricity, geological and fossil discoveries, and voyages of merchant vessels in remote parts of the globe (presaging Darwin’s assignments on the *Beagle* a century later).

The presentation will include several specific references to citations to illustrate Wesley’s conviction that all men have the capacity to know God through their “natural endowments” and have the freedom of choice to act ethically, based on this knowledge.

**I.D. STUDENT/EARLY CAREER
TRACK**

Great Room C

**Faith and Work
for Scientific Careers**
Hannah Eagleson, Coordinator

What does it mean to follow Christ and flourish in a science career? Come engage that question in community.

We’ll begin with a panel of experts, including scientists and science-aware pastors and theologians. Then we’ll break into interactive small groups so you can meet others in your field or related ones and grow in your own faith and work connections.

After small groups, we’ll head over to the Student/Early Career Lunch Meetup for more conversation.

*Cohosted by InterVarsity’s
Emerging Scholars Network.*

**I.A. PHYSICAL SCIENCES:
MODERN PHYSICS AND
THE NATURE OF REALITY
(CONT'D)**

Great Room AB

**Does Christianity Require
Belief in the Supernatural?
Roger C. Wiens**

It was long believed that God suspended the laws of nature when he created the world. This supposed supernatural aspect of creation, i.e., the gaps in our knowledge of the creation process, was long considered as evidence for the existence of God. Many Christians view these gaps as essential evidence for God (“God-of-the-gaps” mentality).

Science now has natural explanations for many aspects of creation, seen as a threat by many Christians. However, there are two logical outcomes: one is to conclude there is no God (this outcome is the threatening one); and the other is that God works more through natural processes than people once thought. What is wrong with this second alternative? Key to this concept is that God is still sovereign over all of history, natural and otherwise—just as the Bible teaches.

This raises the question: what if God performed miracles in the Bible—and still today—not through suspending natural laws, but simply within natural laws that we are not aware of? For example, earlier people were not aware of the natural laws we know today that explain the formation of planets, stars, etc. For a scientist trained to always consider naturalistic explanations, this seems compelling and is the antithesis of a God-of-the-gaps mentality. However, taking this thought process to the very beginning, God’s act of setting up the physical laws of the universe is not explainable as a naturalistic process. We still have a gap “in the beginning.”

**I.B. LIFE SCIENCES:
THE EMERGENCE OF
HUMAN UNIQUENESS
(CONT'D)**

Pryz 323

**Adam and Eve: A Biblical
Account of Hominin Evolution
Sophie Lyman
(in consultation with Ziony Zevitz
and Lynne Isbell)**

Genesis’s story of Adam and Eve describes the evolution of hominins, including geological, climactic, predatory, and sexual selection forces, with every verse reconciling science and faith. It describes the cradle of humanity in the East African Rift Valley (Eden) with its geysers (“mist going up from the earth”): a “garden” of varied landscapes that separated the human and chimp lines, “settling” our ancestors there.

It refers to biodiversity as the evolutionary “tree of life” starting with bacteria (“dust from the ground”). It describes how increasing intelligence, i.e., eating the fruit of the “tree of knowledge of good and evil,” meant increasingly painful childbirth due to infants’ bigger brains (“in sorrow thou dost bear children”).

It describes other ancestors’ aspects that distinguish us from other primates: language; sexual monomorphism (Eve appears as Adam’s equal counterpart); loss of the os baculum; and pair-bonding associated with increased group co-operation; predatory pressure, primarily from snakes; selecting for superior vision, reflexes, finger-pointing, and shared focus; and progressive loss of body hair to full nakedness allowing emotional reading (“they know they are naked”) and leading to modesty and shame with its implications for social order.

It mentions diet changes from fruit-eating early hominins, to omnivorous eating “from the ground,” followed by humans’ unique capacity for persistence hunting enabled “by the sweat of thy brow.” Finally, it describes the “out of Africa” theory, and the pulsed climate variability theory with cyclical periods of extreme aridity—with the ancient Hebrew “returning blazing drought” usually translated as “whirling flaming sword.”

**I.C. THEOLOGICAL PERSPECTIVES:
HISTORICAL PERSPECTIVES
ON SCIENCE AND FAITH
(CONT'D)**

Pryz 327

**Robert Boyle’s
Philosophy of Religion
Edward B. “Ted” Davis**

Robert Boyle’s passion for apologetics was already evident in his early twenties when he was profoundly impressed by reading defenses of Christianity by Philippe de Mornay and others. His primary motive was to persuade wayward Christians, including members of his immediate family, to live more piously and to devote themselves to charitable works.

After he accepted the mechanical philosophy, he integrated it fully into his program to prove the truth of Christianity, especially against those skeptics who used the new science to justify their godlessness. The clockwork universe required a Creator, made genuine biblical miracles easier to identify, enhanced human dominion over the creation, and drove pagan notions of nature to the periphery of natural philosophy.

Simultaneously, Boyle carefully limited the scope of human reason, while underscoring God’s freedom and sovereignty over the laws of nature. Thus, the world could be discovered only empirically.

**I.D. STUDENT/EARLY CAREER
TRACK (CONT'D)**

Great Room C

**Faith and Work
for Scientific Careers
Hannah Eagleson, Coordinator**

What does it mean to follow Christ and flourish in a science career? Come engage that question in community.

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**I.A. PHYSICAL SCIENCES:
MODERN PHYSICS AND
THE NATURE OF REALITY
(CONT'D)**

Great Room AB

**On the Statistical Plausibility
of Divine Providence**

Charles Kankelborg

Classical Christian theology asserts that God is both omniscient and continually involved in the world. The prudential intervention of God is described as divine providence, as distinct from extraordinary miracles. Science has been broadly successful at discovering and applying universal physical laws, so we infer that providence must usually be hidden from view. We therefore ask: Is it possible that providential action is concealed by physical random processes?

This proposal has met with great skepticism, but arguments on either side have been vague and qualitative. To investigate these issues, I develop a numerical model of storm waves on a large lake. Factors that tend to randomize the wave pattern over time (e.g., nonlinear interactions, bathymetry, and driving by variable winds) are represented summarily by random phase noise.

Stipulating that the programmer of the model has detailed insight into the random number generator that governs this process, I quantify the limits of the programmer's influence on the lake. I find that the programmer, working within the physical and statistical properties of the model, has considerable latitude to determine the individual circumstances faced by vessels that chart a course through the storm.

The model is intended as neither a research grade simulation nor a prescription for divine action. However, the realistic balance of random and deterministic elements provides a meaningful test of plausibility. Leveraging this example and arguing from broader statistical considerations, I propose that divine providence could be embedded within the random processes of our universe.

**I.B. LIFE SCIENCES:
THE EMERGENCE OF
HUMAN UNIQUENESS
(CONT'D)**

Pryz 323

**New Technology and
Theology for Ecology**

Paul H. Carr

"And God said, 'Let us make man in our image, and let them have dominion ... over all the earth ...'" (Gen. 1:26). Those who interpret "dominion" as justification to exploit nature are contributing to our ecological crisis. What theological understandings might lead to a spiritual-moral imperative for creation care?

A founder of process theology, A. N. Whitehead, believed the purpose of the universe was the production of beauty. Is beauty "in the eyes of the beholder" or an encounter with the Divine? Without divinely created beauty and intricacy, nature becomes an object that may be ravaged. For example, a coal mine can be beautiful in the eyes of its owner because it is a source of black gold.

Technology is complementing theology for ecology. New fracking technology has made natural gas cheaper than coal. Natural gas is now replacing coal and reducing carbon dioxide (CO₂) emissions because natural gas has half those from coal. Also, solar energy from heaven has become more economical and greener than coal (from hell.)

It takes centuries for natural processes to absorb the CO₂ in our atmosphere. I will describe the diversity of carbon capture technologies that remove CO₂ immediately. Captured carbon is being either sequestered or preferably utilized.

**I.C. THEOLOGICAL PERSPECTIVES:
HISTORICAL PERSPECTIVES
ON SCIENCE AND FAITH
(CONT'D)**

Pryz 327

**Convergence of the Human
and Divine: The Metaphysical
Limitations of Science and
Its Implications for
Theological Reflection**

Finney Premkumar

What does science and especially the laws of physics tell us about the cosmos we inhabit? From Lavoisier's quantitative chemistry experiments that showed the conservation of matter and Faraday's introduction of the notion of forces down to Einstein's theories of special and general relativity, science seems to provide a special sort of privileged access to reality. However, can this access or metaphysical reach, which has been historically assumed, be sustained? Do the deliverances of science really have metaphysical import? In other words, can the "empirical claims" of science lead to "existence claims" or truth such that science can be shown to have the requisite metaphysical or representational power that has customarily been attributed to it? If not, what are the implications for our thinking about the convergence of the human (scientific) and divine (theological) dimensions?

This presentation will discuss the nature of science and its rigorous methodology in an effort to show that it is not necessarily truth-conferring, i.e., get us to what Richard Rorty called a "final vocabulary" or reality. While satisfaction of a given theory by the rules of method might warrant acceptance of the theory, it is not thereby truth conferring since its confirmation does not explain why it conduces to truth in a non-epistemic sense.

Without undermining or displacing the importance of science, I wish to provide examples and models of how this modified vision of science can profitably interact with theology for a mutually beneficial outcome.

**I.D. STUDENT/EARLY CAREER
TRACK (CONT'D)**

Great Room C

**Faith and Work
for Scientific Careers**

Hannah Eagleson, Coordinator

What does it mean to follow Christ and flourish in a science career? Come engage that question in community.

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**II.A. LIFE SCIENCES:
HEALTHCARE**

Great Room AB

**How Network Theory,
Computational Modeling,
and Microscopy in the Islet
Informs Diabetes Care and
Perhaps the Influence of Our
Heart Posture and Attitudes
on Faith Communication****Jennifer K. Briggs, Vira Kravets,
JaeAnn M. Dwulet, and
Richard K.P. Benninger**

The pancreatic islet is composed of hundreds of highly heterogeneous, insulin-secreting β -cells. Gap-junctions form links between this complex network of dynamic cells, allowing them to synchronize and secrete insulin in a pulsatile fashion. This synchronization is essential for healthy glucose homeostasis and is lost preceding diabetes. Therefore, understanding the influence of β -cell dynamics and communication on whole islet synchronization holds promise for new diabetes diagnostics and therapies.

We present data derived from computational modeling of islet electrophysiology and microscopy to show that intrinsic dynamics β -cells are more influential than physical communication on the emergent behavior of the islet. These results suggest an alternative interpretation of the relationship between structure and function within the pancreatic islet and, thus, how islet coordination may break down in diabetes.

We analogize the islet to a collective group of people and β -cells to the heterogeneous individuals within this group. If the analogy holds, intrinsic dynamics—such as our heart posture and attitude toward God and others—are far more influential in guiding group behavior than our physical communication. In this presentation, we discuss our scientific findings, their implications in diabetes care, and how this analogy may influence our choices as people of faith.

**II.B. SOCIAL & PSYCHOLOGICAL
SCIENCES: UNITY AND
DIVERSITY**

Pryz 323

**Diversity of Consciousness:
A Consideration of
Neurodivergence,
Collective Consciousness, and
Inter-Brain Homeostasis**
Charitie Martino

How is diversity of mind defined by current computational neuroscience? From intra-functional diversity (inside one brain) involving the assorted states of information processing to inter-diversity (brain-to-brain), the variety of cognitive abilities between individual to individual, cognitive science explores variety in the way the brain functions and connects to other brains.

Intra-functional diversity includes the multifarious states a singular mind can be in: creative, openminded modes or more structured analytical phases. Within this space of intra-functionality, people differ dramatically with the amount of information they can process and the degree to which they can suppress their Default Mode Network (i.e., decision making and organization) to allow for greater amounts of brain variability.

Inter-diversity, however, speaks to the variety of cognitive constructs between brains like memory, perception, and attention, which are all shaped by genetic and environmental factors. These functional and structural differences are on a scale, of course, ranging from “neurotypical” to “neurodivergent” to even “neurodegenerative.” “Neurotypical” is a term that’s used to describe individuals with typical neurological development or functioning. “Neurodivergent” refers to individuals whose brains process information in a way that is not typical of most individuals (e.g., Autism, ADHD). And lastly, “neurodegenerative” disorders are chronic conditions that damage and destroy parts of your nervous system over time, especially the brain (e.g., Parkinson’s and Alzheimer’s).

How then do we achieve unity across cognitive diversity?

**II.C. THEOLOGICAL PERSPECTIVES:
DIVERSE THEOLOGIES OF
CREATION CARE**

Pryz 327

**Environmental Justice:
Our Missing Focus**
David Larrabee

Implementing technology sometimes results in environmental injustices. Restitution can be made to the survivors of environmental injustice, but restitution cannot undo the injustice. I will explore Ernst Conradie’s concept of a “deficit” between restitution and the injustice. Because of this, justice is always partial. Perhaps a better approach is reconciliation.

Christians are called to reconcile with our brothers and sisters (Matt. 5:23–26). I will explore several meanings of “reconciliation” in the public square as described by Nina Burridge. This talk will then explore the steps required for “substantive reconciliation.” Substantive reconciliation is offered by the victim. Thus, substantive reconciliation is not always possible.

Sometimes reconciliation is of secondary importance. Sea-level rise is making the habitable area of Tuvalu, a Pacific island nation, smaller each year. Maina Talia is a Christian theologian from Tuvalu. His theological jumping off point is the parable of the Good Samaritan. Who will care for the Tuvalu people when they have to leave the island? Will their culture survive? In my estimation, the United States plays the role of one of the robbers in this parable. How do we transition to the role of the Good Samaritan?

These voices, all outside North America, should influence how we do eco-theology within a United States context. We need to hear the voices of the victims of environmental injustice. Perhaps US eco theology needs to start with repentance and lamentation. There is plenty of biblical material to draw upon for such an effort.

II.D. PRESIDENT’S PANEL

Great Room C

Identity Formation
Moderator: Janel Curry**Panelists: Jay Medenwaldt,
Dwight Schwartz, Bob Kaita**

In this panel, psychologist Jay Medenwaldt will discuss the current status of the psychological science on identity and identity development. It will include a summary of what identity is, the major domains of identity, and how identity relates to the self. He will then give an overview of identity development, focusing on when identity tends to develop most rapidly and the factors that affect identity development.

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**II.A. LIFE SCIENCES:
HEALTHCARE (CONT'D)**

Great Room AB

**How to Detect Cancer at
Stage Negative One**
Perry Marshall

Many cancers begin when a tissue cell under stress forms a symbiotic merger with an immune cell, creating a Polyploid giant cancer cell (PGCC). Stages of growth are virtually identical to that of an embryo, but the result is a tumor, whose growth is a “dark evil twin” of conception and birth.

First identified by Virchow in 1854, PGCCs play a complex role in cancer progression. Initially disregarded, research from the 2000s onwards revealed their diverse contributions to tumor aggression, including invasion, metastasis, and resistance to therapy. PGCC cells are pre-cancerous and are not affected by chemotherapy. They can be captured using filter techniques and tagged with bi-specific antibodies. The first International Conference on PGCCs was held at MD Anderson in February 2024.

This presentation outlines the development of PGCCs and the Open Source Cancer Remission Tissue Repository at nine hospitals including Harvard, MD Anderson, Johns Hopkins, and Columbia. The project aims to detect cancer at Stage Negative One and reduce incidence of a second cancer.

**II.B. SOCIAL & PSYCHOLOGICAL
SCIENCES: UNITY AND
DIVERSITY (CONT'D)**

Pryz 323

**Problematizing Both Diversity
and Unity through a Canadian
Study of Religious Biography:
Seeking a Trinitarian Ethic
That Offers the Productive
Discomfort of Difference
As a Reflection of the
Grace of God**
Peter Schuurman

Diversity is a cultural good, with a basis in creation and in the Trinity. In some parts of Western culture, however, it has taken on an independent sacred quality. While modern culture was bent on finding universals (which were sometimes disguised particulars), postmodern culture has turned its attention to diversity, which has become, in some instances, a form of new tribalism.

Drawing on 30 interviews with Canadians who are deconstructing their faith from my coauthored book *Blessed Are the Undone: Testimonies of the Quiet Deconstruction of Faith in Canada* (New Leaf Press, forthcoming 2024), I will show how diversity and difference, linked with a culture of authenticity, mitigate rigid and narrow conceptions of a totalizing Christian faith while also cultivating a social fragmentation that may lead to a deep loneliness and isolation.

The presentation ends with a reflection on the Trinity and the image of God in human community, and using some thoughts from Dutch theologian Herman Bavinck, suggesting how the notion of unity in diversity, and diversity in unity, may offer a way forward in which there can be (as James Calvin Davis says in his 2017 book entitled *Forbearance: A Theological Ethic for a Disagreeable Church*) “a positive commitment to living with the productive discomfort of difference as a reflection of the grace of God.”

**II.C. THEOLOGICAL PERSPECTIVES:
DIVERSE THEOLOGIES OF
CREATION CARE (CONT'D)**

Pryz 327

**Creation Care
As a Gospel Issue:
An Opportunity for Science**
Ed Brown

In every direction we look today, mission goals are affected and often blocked by concerns related to the environment (broadly labeled as creation care). Those who work with the world's poor have to prepare for the effects of degraded agricultural land and ongoing weather disasters. Healthcare missionaries must reckon daily with environmental diseases. Even traditional mission agencies focused on evangelism and church planting can grind to a halt when major disasters, like the floods in Pakistan, occur. The pragmatic case for creation care in missions is clear.

But there is another reason why creation care should be at the top of our priority list: the command to care for God's creation is rooted in our identity as human beings, and even more so as the people of God. When we view creation care this way, it cannot just be a pragmatic issue. It is a gospel issue which we can closely connect to the movement in the late twentieth century known as integral mission.

Both of these reasons—pragmatic and theological—represent opportunities for scientists to engage with the wider church family by equipping Christians with resources and expertise to care for and heal God's creation.

This presentation will trace the development of the concept of creation care as a gospel issue over the last fifteen years against the backdrop of the development of integral mission over the last fifty years.

II.D. PRESIDENT'S PANEL (CONT'D)

Great Room C

Identity Formation
Moderator: Janel CurryPanelists: Jay Medenwaldt,
Dwight Schwartz, Bob Kaita

In this panel, psychologist Jay Medenwaldt will discuss the current status of the psychological science on identity and identity development. It will include a summary of what identity is, the major domains of identity, and how identity relates to the self. He will then give an overview of identity development, focusing on when identity tends to develop most rapidly and the factors that affect identity development.

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**II.A. LIFE SCIENCES:
HEALTHCARE (CONT'D)**

Great Room AB

**Healthy Individuals
in Sick Populations:
Can Individualism Sustain
Healthy Populations?
Mark A. Strand**

Cells, tissues, organs, and organisms are unsustainable as individual units. The diverse biological parts need to work together in collective fashion to create sustainable systems, species, and ecosystems. Humans are a part of that diverse natural world, and likewise are unsustainable as individual units. These biological phenomena illustrate the deficiency of individualism as a guiding principle in the natural world. It is the argument of the presenter that individualism is also inadequate as a guiding principle in the human world.

Individualism is a social philosophy that assigns higher value to the individual than to the community. Individualism is frequently defended as essential in a free society, in contradistinction to societies with collectivistic values. But biologically, sociologically, and theologically, individualism in its extreme form is unsustainable. Paul's declaration in I Corinthians 12 that we are parts of one body and members of one another illustrates this point in theological perspective.

Population health is a new and critical way of imagining health from a collective rather than an exclusively individualistic perspective. In the United States, it is difficult to accomplish improved population health because of a health system in which individual interests predominate. The result is that while many individuals are healthy, they reside within sick populations. The system as it exists, is unable to create healthy populations. In this presentation, the inadequacies of individualism to create healthy populations will be explained, including a call to Christians to live as "members of one another."

**II.B. SOCIAL & PSYCHOLOGICAL
SCIENCES: UNITY AND
DIVERSITY (CONT'D)**

Pryz 323

**Race and the Temptations of
All-Too-Simple-Categories
Dave Unander**

Although modern genetics has demolished any scientific basis for "races," discussions about "race" continue to trigger intense emotions. Ironically, even at eight billion souls, we are less genetically diverse than many other mammals, including the "Great Apes." The Apostle Paul was correct—we are one blood.

My life reflected this crisis. Racial bigotry, overt or unconscious, shaped my hometown of Chicago—and me. The Bible, genetics, and friends of differing origins contributed to revealing the falsehoods of racism.

Although slavery and bigotry predate modern science, prominent scientists from the eighteenth to twentieth centuries codified distinct "races," especially the inferiority of non-Europeans, as an established fact. Attempts to prove differences measurably, however, proved futile. Quantifying intelligence by IQ scores was later used to justify segregation. By the 1990s, studies showed IQ predicts little. Modern genomics reveals profound DNA similarity in human DNA, yet each individual possesses a unique shuffle of genes.

Historically, Christians devoted to Christ and to sharing his love outside their own circle, changed beliefs and policies about slavery and "races," whether supported or opposed by church or academic authorities.

Dismantling policies that created segregated ghettos, coupled with Christians exhibiting respect and kindness in diverse communities, can be a powerful witness. Peoples and cultures are neither uniform nor expected to merge into uniformity. God demands only moral righteousness.

Racism is just one genetic determinism. Assumptions that behaviors or personalities are inherited identities, parallel the history of "races," and remain a present temptation.

**II.C. THEOLOGICAL PERSPECTIVES:
DIVERSE THEOLOGIES OF
CREATION CARE (CONT'D)**

Pryz 327

**Addressing the Crisis of
Discipleship in Climate Action
Lowell Bliss**

There is evidence, anecdotal and some statistical, that to invite a young evangelical believer into climate action is to set them on a pathway that will eventually lead them out of Evangelicalism, out of church involvement, and sometimes out of the faith altogether.

In an earlier generation, groups like the ASA may have successfully helped young "Christians in the sciences" navigate thorny issues of spiritual integration only to now be called on to do the same thing for young Christians in "scientific activism." Our situation may have been better served if Chris Wright had not called creation care a "gospel" issue as he did in the Cape Town Commitment but rather had followed his mentor John Stott's lead and called it a "discipleship" issue.

In this presentation, the author takes one of his generation's most famous models of discipleship—The Navigator's wheel of Bible study, prayer, witness, and fellowship—and demonstrates how the Christian Climate Observers Program and Climate Intercessors are reconceptualizing these four practices for the Anthropocene. The goal of leaders, however, must be to tuck young activists in closer to Christ, rather than desperately buttress evangelical culture and infrastructure.

This year's COP29 climate summit will feature work on the Global Goal for Adaptation. What are adaptation goals for Christian discipleship?

II.D. PRESIDENT'S PANEL (CONT'D)

Great Room C

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III.A. SOCIAL & PSYCHOLOGICAL SCIENCES: REFLECTIONS ON IDENTITY FORMATION

Great Room AB

The Use of Puberty Blockers in Childhood Gender Dysphoria
 Tony Jelsma

The Free University Medical Center in Amsterdam, beginning with explicitly Christian motives, has long been in the forefront of surgical treatments for gender dysphoria (GD). More recently, it introduced puberty blockers as a treatment approach for childhood gender dysphoria.

These drugs act to suppress the dramatic increase in sex hormones that occurs in puberty. Since most GD desists upon puberty, puberty blockers are intended to buy time by delaying the distress caused by the development of secondary sex characteristics. This “Dutch approach” is the basis of similar treatments all over the world, but it has raised concerns. First, blocking puberty prevents the very thing that causes desistance. Second, delaying puberty misses an important stage in brain development. Further, the original Dutch study had numerous flaws, including no control group, different dysphoria scales pre- and post-treatment, inability to exclude the placebo effect, limited follow-up, and significant loss to follow-up.

Later studies done elsewhere have similar shortcomings but more-rigorous studies in Finland and Sweden did not show benefits of this approach. Moreover, puberty blockers raise concerns because the hormone (GnRH) that is blocked also acts on other brain structures, which function in cognition, working memory, mood, and emotional reactivity.

An essentialist/dualist view of gender/sex, combined with perceived gender roles, might cause some children with atypical gender expression to believe they are transgender. Instead of supporting a gender-nonconforming child through this confusing time, a gender-affirmation approach can needlessly encourage children along a path of transition and medicalization.

III.B. ENVIRONMENTAL SCIENCES: DIVERSE ECOLOGICAL CRISES

Pryz 323

There Is No Planet B: A Christian Perspective
 Sam Pimentel

This presentation will delve into both theological and scientific perspectives concerning our planetary home. Earth is a precious place, boasting geophysical systems that have fostered a stable climate, allowing for the flourishing of a diverse biosphere. Although just one of eight planets orbiting the Sun and a mere member in the extensive array of known planets within the universe, not to mention the speculated multiverse, its significance cannot be overstated.

Earth stands as the sole known habitat blessed with life, including life created in the image of God—creatures that can give voice to creations praise. Earth possesses remarkable natural resources, including critical minerals that underpin the foundations of technological civilization.

In this digital age, our application of foresight through the scientific method has unravelled the history and the possible future of our home. The pressing reality of climate change propels us to the brink of planetary boundaries, necessitating proactive measures. It is imperative for Christians to be at the forefront in climate action and sustainability research, ensuring the continued nourishment and sustenance of the community of creation.

Earth is a wonderful gift, and the biblical narrative demonstrates that God is deeply invested in this planet. Our collective efforts should strive to build a home worthy of God and his image bearers.

III.C. LIFE SCIENCES: DIVERSE APPROACHES TO HUMAN WELL-BEING

Pryz 327

God, Love, and the Brain: What’s Agape Got to Do with It?

Cahleen Shrier, Danielle Gearing, and Paul Shrier

The brain is designed to give and receive love. Various areas of the brain are involved in different types of love (i.e., lust, attraction, and attachment).

The Greek Old Testament (Septuagint) purposefully (and with good reason) mistranslated the words for love from the Hebrew Old Testament. The word used for sexual love in the Song of Solomon, *ahabah*, is not translated into the Greek word *eros*. Instead, it was collapsed into the Greek term *agape* (self-less love).

This led to a misunderstanding that *eros* was in conflict with *agape*. In addition, Werner Jeanrond, in *A Theology of Love*, states, “A problematic image of God has suggested that God is the infinite giver of love who never needs or longs to receive love ...” (p. 20). However, God desires a relationship in which he not only gives love to us but receives love from us (Ps. 44:3; Prov. 15:8; Isa. 62:4).

God created our brains to be in a relationship with him and with other people. “We are created out of love, for love.” The hypothalamus causes release of estrogen or testosterone (from the gonads) to develop an initial sexual desire (lust). Attraction is the result of dopamine release from the hypothalamus and the relationship is further developed. Oxytocin and vasopressin are released from the hypothalamus to form the permanent attachment between the couple. These processes encourage deep-rooted monogamous relationships. This is God’s design for us.

III.D. THEOLOGICAL PERSPECTIVES: COMMUNICATING SCIENCE TO DIVERSE AUDIENCES

Great Room C

Faith and Science Viewpoints Amongst Southeastern US Christian Ministries

Josh Owens

Despite advances in our understanding of the interplay between science and faith, a majority of Americans believe that science and faith are in conflict (Pew Research). This perceived conflict manifests itself in scientific literacy as well as impeding the faith of young scientists and non-scientists alike. For example, roughly 59% of Americans believe that humans evolved over time into our current state; however, this drops to 52% for Christian-affiliated individuals and dramatically drops to 34% for white, evangelical Christians (Pew Research). What is the core reason for this perceived conflict for evangelical Christians? We believe that this is due to biblical interpretation that is hyper-literal for Genesis 1–11 and this biblical interpretation is being taught by Christian ministers.

To discern if Christian pastors are a source of this conflict, we began a project focused on Southeastern US ministers and surveyed them about faith and science. Our survey asked if ministers thought that faith and science are in conflict, categorized them into a faith and science category (as defined by Ian Barbour) by asking questions about Genesis 1–11, and used several diagnostic questions to discern their viewpoints on the mechanism of human origins.

Our preliminary results suggest that a majority of Christian pastors do not believe evolution is capable of producing human beings and utilize a hyper-literal interpretation of Genesis. Potentially, the perceived conflict in the general evangelical population is a result of teaching by their pastor suggesting we should target pastors to reduce the perceived conflict between faith and science.

III.A. SOCIAL & PSYCHOLOGICAL SCIENCES: REFLECTIONS ON IDENTITY FORMATION (CONT'D)

Great Room AB

Culture, Colonialism, and Gender Identity: Reflections from Rwanda
Dana Oleskiewicz

Culture in the social sciences is a concept that goes beyond common music, food, and ethnicity from a single geographic region. Culture is how people manifest social norms that are forever changing as we learn about divine creation and grow in our endeavors as a society. Human behaviors within community, while relating to one another for a shared experience, defines cultural foundations.

Throughout history, colonialism has influenced the cultures of indigenous people. Science and religion at times will coalesce to become a powerful catalyst of cultural change. A culture “war” describes either a perceived or genuine social phenomenon of imposed beliefs, customs, and practices onto others as is influenced by faith doctrines—essentially as modern-day colonialism. Gender identity is one such cultural area of conflict today.

Gender theory makes the claim that identity is a social construct only, while gender-critical beliefs similarly will dismiss biological innate underpinnings known to influence gender. The negative implication of denying the reality of gender identity for humans is significant, particularly to the vulnerable gender diverse population in need of gender-affirming healthcare.

This presentation will use cultural stories from Rwanda, Africa, as a backdrop to consider gender identity with reference to emerging research in early childhood development. Diversity written into humanity as gender will be examined through history, biology, psychology, anthropology, and medical bioethics using humble faithfulness to the Gospel.

III.B. ENVIRONMENTAL SCIENCES: DIVERSE ECOLOGICAL CRISES (CONT'D)

Pryz 323

Did God Really Say, “Serve and Protect the Garden?” Facing the Sins of the Anthropocene
David R. Clements

Much evidence indicates that human influence on the planet has reached the point entering a new geological age: the Anthropocene. Dutch meteorologist Paul Crutzen, credited with popularizing the term, said, “It’s a pity we’re still officially living an age called the Holocene. The Anthropocene—human dominance of biological, chemical and geological processes on Earth—is already an undeniable reality.”

We see evidence of this in the lake-bottom strata of Ontario’s Crawford Lake internationally designated as a stark Anthropocene indicator, reflecting planet-scale changes. With planetary health clearly going downhill, what can be done to stop the slide and who can do it? The United Nations?

The United Nations has declared the current decade (2021–2030) as the Decade on Ecosystem Restoration. Restoration ecologists world over are making strong initiatives in response. Is this enough? For example, the original Hawaiian “paradise” has been so altered by invasive species and native species extinctions that there is no going back.

Theologically, how do we reconcile that as God’s image bearers we ourselves have orchestrated the twin crises of climate change and biodiversity loss? In Colossians 1:15–20, Christ is said to be reconciling “everything.” Perhaps this reconciliation includes not only divine activity but also our own calling to do something about the crisis, to heal the planet. God told us to look after the garden, which situates humanity as part of the garden, so the complete reconciliation must encompass the Landlord, the garden, and the gardeners who must now face their Anthropocene sins and lean into redemption.

III.C. LIFE SCIENCES: DIVERSE APPROACHES TO HUMAN WELL-BEING (CONT'D)

Pryz 327

Wellness for the Whole Person: Spirit, Soul, and Body
Jim Painter

Wellness is more than just avoiding disease; it means living in vibrant health. We are not simply a body but also mind and spirit. This synergistic triad is inseparable. A poor diet may not just affect the body but also how we think and our disposition toward others. Similarly, anxiety in your spirit may affect the health of your body. Therefore, for you to truly achieve TOTAL wellness, your efforts must include all three dimensions.

Body—You have heard it said that you are what you eat. That is true but health and wellness include being alert, flexible, and moving. It includes making healthy choices at that moment and as a lifestyle.

Mind—Our minds are so powerful, much more than we know! We use our thoughts and words to train ourselves to maintain a peaceful, loving, and aware mindset.

Spirit—The spirit is our divine connection, and it may very well be the most powerful aspect of our being. One way to nurture the spirit is to reduce anxiety and stress and replace them with calmness, quiet, unfaltering confidence, and a general state of happiness and gratitude.

We will explore the interplay of spirit on mind and body, then provide inspiration and information on developing a peaceful life.

III.D. THEOLOGICAL PERSPECTIVES: COMMUNICATING SCIENCE TO DIVERSE AUDIENCES (CONT'D)

Great Room C

Engaging Scientists and Engineers with the Gospel
Dominic Halsmer, Wesley Klehm, Trenton Childers, and Fabian Martinez Santiago

Many Christians sense a call to engage in missionary work among a particular people-group, often of a specific culture or geographical region. But what would be the most effective means of engaging scientists and engineers with the Gospel? This strange and wonderful segment of society is marked by high levels of education, rational thinking, and a strong appreciation for, and fascination with, the natural world.

A two-step apologetic approach is explored as a logically reasonable introduction (or re-introduction) to a Christian worldview. A presentation of the Gospel in the language of scientists and engineers is discussed. Recent examples from the scientific, engineering, and philosophical literature are considered. Common roadblocks to Christian faith, with regard to scientists and engineers, are also examined, with strategies for their elimination.

III.A. SOCIAL & PSYCHOLOGICAL SCIENCES: REFLECTIONS ON IDENTITY FORMATION (CONT'D)

Great Room AB

Jesus Christ, the Life of the Mind, and Professional Formation
John Wood

Ours is an age of deep mistrust. Some are saying that we face an epistemic crisis not unlike that experienced at the outset of the enlightenment. Information, true or not, moves at the speed of light. The possibilities of misunderstanding and mistrust multiply—magnified by our technological prowess. Across the academy, issues ranging from data reproducibility in social science and pharmaceutical studies, to fraud and plagiarism have shaken trust.

Today our challenge is to regain a sense of a shared, common good that is informed by a robust and authentic scientific endeavor. One important feature of the ASA redemptive framework is professional formation and development. How might this aid us in restoring a sense of shared value?

We seldom think of the three terms in the title together, but perhaps they can inform our faith-filled professional imagination in new ways. We believers acknowledge that human finitude, our propensity to sin and to think more highly of our thought than we should, fails us.

How can we fully and faithfully represent our most fundamental beliefs within the context of science today? How do we express the virtues of compassion and humility in work and toward our colleagues, clients, and even subject matter? We are not merely professional persons, but also colleagues; we are bridges, and advocates for God's good earth. This view can, with careful reflection, become our witness within a divided world.

III.B. ENVIRONMENTAL SCIENCES: DIVERSE ECOLOGICAL CRISES (CONT'D)

Pryz 323

Christianity and the Ecological Crisis: Are We Ready for What's Ahead?
John Elwood

The groaning creation "waits with eager longing for the revealing of the children of God" writes the Apostle Paul in his letter to the Romans. Whatever meaning he had in mind, Christian environmentalists have generally taken this text as an affirmation of the vital role of the Church in facing the cascading ecological crises which increasingly dominate the daily news. Some have even suggested that only the Church can rise to the challenge of confronting global crisis.

This study considers the role of dominant strains of Western Christianity in the current environmental struggle, the historical responses of religious institutions to times of widespread ecological and social upheaval, and the plausible risks to Christianity in the face of these realities.

Of special importance, we will consider neglected or overlooked threads within our tradition that may now demand a more central role in theologies facing crisis. We will give special attention to the work of theologians Sallie McFague, Catherine Keller, and Douglas John Hall; historians Philip Jenkins and Kyle Harper; and social critics Wes Jackson, Robert Jensen, and John E. Connolly.

III.C. LIFE SCIENCES: DIVERSE APPROACHES TO HUMAN WELL-BEING (CONT'D)

Pryz 327

Empathy: God's Providential Care in the Midst of Pain
Victoria Campbell

For many people, pain is one of the greatest obstacles to belief in the loving God of the Bible. While the US National Academy of Science has concluded that evidence for the experience of pain is limited to mammals and birds, and pain is a necessary warning system for long-lived intelligent creatures, one can still be left wondering why a benevolent God would allow a world with suffering in it? This is where the command of Jesus to "Love your neighbor as yourself" will be considered in conjunction with the brain opioid theory of social attachment which shows that the perception of pain across the diversity of humans, birds, and other mammals is mitigated by the presence of empathetic love.

Among mammals and birds, the psychologically distressing aspect of pain is associated with the anterior cingulate cortex (ACC) and the telencephalic regions of their brains, respectively. In these species, capable of social relationships, these brain regions not only create the distressing aspect of physical pain, but the emotional distress associated with social pain as well. However, the brain opioid theory of social attachment reveals that endogenous opioids released from loving social interactions can soothe creatures' emotional distress, whether that distress is caused by physical or social pain.

This finding is consistent with the Judeo-Christian worldview that a loving, benevolent God created a beautifully diverse world shaped with providential care for all of its creatures.

III.D. THEOLOGICAL PERSPECTIVES: COMMUNICATING SCIENCE TO DIVERSE AUDIENCES (CONT'D)

Great Room C

Lessons Learned in the Christian Classroom: Reducing Fear and Encouraging Friendly Discourse among a Diverse Audience

Julie Woodman,
Lacy Cleveland, and Mark Parker

The broad tent of the ASA statement of faith encompasses Christians from many different denominations. This melting pot of Christian identity mirrors what is seen in society. Within this mix, many hold differing viewpoints on topics commonly perceived as contentious among Christians. Topics such as universe and human origins can spark debate and sometimes unfriendly discourse among Christian brothers and sisters. Furthermore, many Christians will even disagree as to the compatibility of science and faith in general. Though this issue is not new, there has been little insight into an effective approach for its remedy.

This talk will present one modality for promoting friendly and productive conversation on such topics. In a non-majors science course, students watched video lectures from Christian role models. These videos represented diverse opinions on a variety of topics pertaining to science and faith. Student opinions on these topics were assessed at the beginning and the end of the semester.

From this data, it was apparent that the use of role modeling facilitated productive discussion on topics of science and faith when delivered to a diverse Christian audience. The power of these lessons carries beyond the classroom and the key findings of this study can and should inform how Christians interact with others who hold opposing views.

Attendees will receive a list of topics and resources to use in their classroom, their small group, or their local church.

IV.A. ENGINEERING AND TECHNOLOGY: AI AND THE HUMAN CONDITION

Great Room AB

Comparing Views on AI between Theologians and Scientists

Jim Stump

In November of 2023, I ran an exhibit booth at the annual meeting of the Evangelical Theological Society (ETS). There I conducted a ten-question written survey of ETS attendees about artificial intelligence, having asked ChatGPT to help construct the questions for that audience. Some of these included the following (respondents had to indicate how strongly they agreed or disagreed):

- Artificial intelligence poses a potential risk to the traditional understanding of human uniqueness and the divine image in humanity.
- At some point in the future, it is possible that advanced artificial intelligence systems could be considered as having a form of personhood, deserving rights and moral considerations similar to humans.
- Artificial intelligence and its applications pose a threat to human flourishing on Earth.

In my oral presentation at ASA, I would like to replicate the survey among those who attend my session using presentation software that allows instant compiling of the results onscreen. We will then compare the results from ETS and ASA.

I'll conclude, then, by suggesting that AI (even AGI) would not threaten our identity as God's image bearers, and it may even constitute an important achievement of us as sub-creators. But, taking a cue from smartphones and social media, our use of AI may give cause for concern.

IV.B. LIFE SCIENCES: THE MEANING OF HUMANITY

Pryz 323

Does the Bible Say That God Made All Humans from One Man?

Fred S. Cannon

Some recent English Bibles translate Acts 17:26 as "God made from *one man* all humans." But no first millennium manuscripts include "*man*" here. Most read "*of one blood*," while several read "*of one*." Some translators justify adding "*man*" as an "ellipsis": an unwritten word that Greeks knew was grammatically implied. For example, "*is*" often becomes excluded from Greek text, although understood as present. In Greek, "*clues*" for discerning ellipsis words appear in the one or two sentences preceding the ellipsis site. But no such "*clues*" appear just before Acts 17:26. We chronicled 16 types of Greek ellipses throughout the New Testament. But "*from one man*" matched no valid ellipsis patterns. Rather, "*man*" is an emendation that does not belong there.

We also address whether "*of one blood*" or "*of one*" is the likely initial text. We considered two text-types: (1) the "Byzantine," and (2) the Sinaiticus, Alexandrinus, and Vaticanus. We juxtaposed these two at 494 Acts passages that we garnered from *Editio Critica Maior*. We appraised hundreds of manuscripts in Greek, Latin, Syriac, Coptic, Armenian, and other ancient languages. We also considered second–fifth-century patristic writers: Irenaeus, Chrysostom, Augustine, and others.

We found that among early manuscripts and patristics, the "Byzantine" reading was more often favored than previously acknowledged. Thus, important "roots" of "Byzantine" phrases preceded the fourth–fifth century Sinaiticus, Alexandrinus, and Vaticanus. Also, among these 494 passages, there was more early support for the Byzantine "*of one blood*" at Acts 17:26, than for the Byzantine reading at any other test passage.

IV.C. ENVIRONMENTAL SCIENCES: CREATION CARE PLANNING AND SUSTAINABILITY

Pryz 327

An Engineer's Perspective on Creation Care
William Jordan

For Christians who work in the sciences, creation care is an important part of what we do to steward the world that God has created. While scientists have been talking about this for some time, engineers are relatively new to this topic. For example, the required use of sustainable engineering concepts in design was added to the National Society of Professional Engineers Code of Conduct in 2006. The organization that accredits engineering programs, ABET, now says sustainability is part of the design process.

For creation care to be successful, engineers need to be involved. Sustainable engineering is the term we use that includes our concern for the environment. Sustainable engineering leads to sustainable development. While there are many complex definitions of sustainable development, the author likes the simple, four-word definition that has been popularized by Villanova University's sustainable engineering program: Enough, For All, Forever.

Part of sustainable development is its ability to be economically sustainable as well as environmentally sustainable. This in turn can lead to a bottoms-up approach to development that is marketplace driven. An example is the author's conversion of his home from running on energy from a coal-fired power plant to one powered by solar energy. For this to be sustainable, the engineering design has to work well. For this to be a viable solution, the economics has to also work well (in this case 26% of its cost was an income tax credit).

For those of us in the ASA, there is an emerging new affiliate group in environmental science being developed. It is the author's goal that the Christian engineers and scientists within the ASA come together to work in collaboration on ways to deal with this topic.

IV.D. AFFILIATES AND CHAPTERS: ORGANIZATIONAL SEMINAR

Great Room C

How Then Shall We Lead? Fostering ASA Affiliates and Chapters Using Techniques of Leadership Development

Vicki Best and Dana Oleskiewicz

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IV.A. ENGINEERING AND TECHNOLOGY: AI AND THE HUMAN CONDITION (CONT'D)

Great Room AB

Chatting with Blaise Pascal: What Would Pascal Say?

Derek C. Schuurman

Recent developments in Artificial Intelligence (AI) and large language models (LLMs) enable the creation of chatbots that can mimic human-like conversations.

This talk will demonstrate the use of chatbots that take on the persona of various historical scientists, philosophers, and theologians to discuss issues in faith, science, and technology. A live demo of a chatbot tuned to mimic Blaise Pascal in a way that reflects his life and writings will be presented with an opportunity for attendees to pose their own queries.

The possibilities and pitfalls of using AI chatbots to mimic historical figures and their writings will be discussed. In particular, some ontological concerns about chatbots will be identified along with some suggestions for how (LLMs) might be fruitfully employed in the area of faith, science, and technology

IV.B. LIFE SCIENCES: THE MEANING OF HUMANITY (CONT'D)

Pryz 323

Transhumanism: Building a New Tower of Babel

David Siegrist

Transhumanism represents the attempt to transcend the human condition. I believe that humans should improve their circumstances. However, transhumanism carries this tendency to an extreme in which humans seek to become like gods, with wealth, long lives, health, and security. Greeks called this type of thing *Pleonexia*: wanting more than more than your share. (Wanting just more than your share was considered laudable). *Pleonexia* leads to *hubris* (ego mania) and *nemesis* (destruction).

Gaining "superior" qualities through genetic engineering or other technical enhancements is likely to be expensive. Hence, elites who can afford significant enhancements are likely to become more influential and further exacerbate social stratification and disrupt existing political systems. At an extreme, "significantly enhanced" humans may belittle "normal" people who have been left behind technically.

There are several notable historical examples of elites gaining controlling political power. French revolutionaries created a "Dictatorship of Virtue." Bolsheviks sought to create "the New Soviet Man." Both efforts drowned in blood. Certain religious extremists who created a theocracy have not done better.

Christian theology is against humans seeking to displace God. As humans wield increasing power and are able to shape their environment more and more, perhaps with serious unforeseen consequences, it becomes ever more imperative for us all to keep up conceptually with the developing science and technology, and to display traditional Christian virtues such as humility and compassion to moderate the transhumanism trend and its profound implications.

IV.C. ENVIRONMENTAL SCIENCES: CREATION CARE PLANNING AND SUSTAINABILITY (CONT'D)

Pryz 327

Landscape Planning and God's Realm

George McKibbin

At ASA 2023, I reviewed Angus Hills's seminal paper entitled "A Philosophical Approach to Landscape Planning," published in 1974. Hills prescribed a philosophical and theological basis for ecological planning, relying on his theory of landscape "transactions." These transactions underpin a landscape's capability for resource usage and land use decisions. I will dive deeper into Hill's transactions and address cultural perspectives and warming climate, using my planning and design experience.

The first example draws analysis of the Niagara Escarpment's natural environment in the preparation of the Proposed Plan for the Niagara Escarpment (a UNESCO Biosphere Reserve). The Escarpment Plan was approved by the Province of Ontario in June 1985 and remains in force to this day.

The second involves helping negotiate a settlement agreement between Nishnawbe-Aski Nation (NAN), the Ontario Ministry of Natural Resources, and the Ontario Forest Industries Association in 1994. NAN represents 44 Aboriginal communities in the James Bay and Hudson's Bay watersheds in northern Ontario. My involvement included presentation of the settlement to an Environmental Assessment Hearing in Sioux Lookout, northwestern Ontario.

The third is my volunteer experience in Clean Air Hamilton (CAH). CAH is a multi-stakeholder committee addressing air quality in a challenging airshed in Hamilton, Ontario. This committee encompasses concerned and competing interests: public health, industry, neighborhood, university and community college as well as municipal.

Using my understanding of God's realm and four concepts, I will develop a series of creation care principles to be applied to the landscapes we inhabit. The four concepts include transactions and metaphysics, intimacy, form and function, and agency.

IV.D. AFFILIATES AND CHAPTERS: ORGANIZATIONAL SEMINAR (CONT'D)

Great Room C

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IV.A. ENGINEERING AND TECHNOLOGY: AI AND THE HUMAN CONDITION (CONT'D)

Great Room AB

Decentralization and AI: Heavenly Blueprints for Human Flourishing

John Knox

Though generative artificial intelligence has taken hold of our society's imagination, there is yet another more powerful use-case of artificial intelligence (AI) that can lead to human flourishing—collective decisioning AI. This type of AI is trained via natural language processing (NLP) and Bayesian belief networks (BBN) to harness the best collaboration and collective intelligence from human groups meeting in real-time to solve problems. It understands written and verbal human conversations and distills the main points shared into summaries used to co-facilitate governance, voting, and more.

AI can turbocharge decentralized and distrusted decision-making. Blockchain technologies have led to the advent of online social cooperatives—christened “decentralized autonomous organizations” (DAOs)—virtual groups of humans agreeing to an organization's charter and given voting rights on how to spend the money that each contributes to a transparent virtual treasury.

In God's economic plan in the Old Testament, God owned the land and gave his people the rights to “possess” the means of production in 50-year cycles. There was a mulligan available, so poverty was not forever intractable. Today over 45.8% of global wealth is owned directly by 1.1% of the population. The Forbes 2000 control roughly 33% of the rest.

Since wealth and decision-making is highly concentrated now, investing in systems which democratize access to decision making and give seats at the table will especially help promote human flourishing.

IV.B. LIFE SCIENCES: THE MEANING OF HUMANITY (CONT'D)

Pryz 323

A Roadmap for Ethical Reflection on Human Germline Genome Editing

Daniel Fernández Soto

Human germline genome editing, modifying an embryo's DNA for medical purposes, has now become feasible due to advancements such as CRISPR technology. Scientists and regulators around the world are trying to deal with the ethical issues that arise with this possibility, and reach an agreement on whether it should be allowed and under what circumstances. There is an ongoing conversation with constant calls for public engagement. This is an opportunity for Christians to contribute to the conversation in a meaningful way, moving beyond simplistic positions and diving into the depth of the matter.

This work presents an interactive web-based tool that offers a general perspective of all the critical ethical questions that need to be addressed in order to take a position on the debate. The tool takes the form of a decision tree, and the different ethical questions are presented in a hierarchical way, so that the answer to one question determines the following one.

The importance of this tool is that it can help anyone, irrespective of their background, navigate through the main ethical issues that arise with human germline genome editing and build their own view. It does not seek to impose an opinion, but rather to help Christians think about the matter so that they can contribute to the conversation.

Please bring your smartphone to participate in this interactive session.

IV.C. ENVIRONMENTAL SCIENCES: CREATION CARE PLANNING AND SUSTAINABILITY (CONT'D)

Pryz 327

Environmental Sustainability in Mennonite Church Canada Member Congregations

Joanne M. Moyer, Laura Krahn, Anna Ronald, Carlie Uglen, Leanne R. Willson

The Mennonite church in Canada has had environmental sustainability statements and programming of different types and with varying levels of commitment since the 1970s. Within the last few years, the regional churches of Mennonite Church Canada have developed working groups to address environmental concerns and climate change.

The leaders of these groups expressed a desire to find out what kind of sustainability activities are being done by individual congregations within each of their regions and across Mennonite Church Canada. This request became a community-engaged research project with The King's University, through which a survey will be conducted across Mennonite Church Canada congregations in the winter of 2024.

Combining closed and open-ended questions, the survey asks about activities, environmental attitudes and faith-based worldviews that inform them. It also asks about the preparedness of church leadership, and the resources within and outside the church that provide support for these congregational endeavors.

This presentation will report on the survey results and will provide a unique view of creation care across an entire national church denomination, contributing insight into the workings of both engaged and inactive congregations.

IV.D. AFFILIATES AND CHAPTERS: ORGANIZATIONAL SEMINAR (CONT'D)

Great Room C

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**V.A. ENVIRONMENTAL SCIENCES:
PROTECTING BIODIVERSITY**

Great Room AB

**When Creation Care Gets Messy:
Managing Human-Wildlife Conflicts in a “Not Yet” World**
Lynn Braband

Over the last half century, there has been increasing attention, even controversy, within the church over environmental concerns. Various theological paradigms have been promoted and evaluated. As a professional wildlife ecologist, I have spent most of my career in the subfield “wildlife damage management” (WDM), which addresses situations when wildlife comes in conflict with human interests including, but not limited to, health and property.

I will discuss and critique definitions of WDM, how WDM is important to wildlife conservation, and the roles of lethal and non-lethal techniques. I am particularly interested in engaging the audience in assisting me in thinking through the “practical theology” of promoting creation care in an imperfect world.

V.B. ENVIRONMENTAL / SOCIAL SCIENCES: EDUCATIONAL APPROACHES TO INTEGRATING FAITH & SCIENCE

Pryz 323

Bringing the Garden to My Students: Teaching Plant and Soil Science with Faith
Beth Madison

This presentation will feature practical examples of teaching science with faith in plant and soil science and environmental science from a professor with 25 years teaching experience in secular and faith-based institutions. Foundational soil and environmental science principles and practices, such as mutualism, cation exchange capacity, and land waste application, can convey Christian living concepts to urban- and farm-background students in ways identifying with their own lives. Basic plant genetics and breeding principles, including PCR, CRISPR, and modern farming practices, can organically link to scripture, history, and everyday life.

Teaching these disciplines with faith is a natural intersection where a specific scientific principle exhibits a specific scriptural purpose in a way that activates mind and soul simultaneously. Not all such intersections are necessarily “a-ha moments” which transform a lecture or lab. Yet all such intersections can be pathways to growth in logic and love, both for student and professor. Intersections like these provide new and important connections with science or with faith which students might not encounter otherwise, much less remember, long after the class, lab, or field trip.

Instructional models and real-life stories will be included to demonstrate how using examples of science with faith can work synergistically in your classes as it has worked in hers. Audience participation is encouraged in this talk, so please come ready to share interests, ideas, laughter, and little bits of wisdom. We are all here to learn together!

V.C. ENGINEERING & TECHNOLOGY: LARGE LANGUAGE MODELS AND AI IN HEALTHCARE

Pryz 327

Religion and LLM Design for Healthcare Professionals
Cyrus P. Olsen III

We know the “do no harm” ethic of healthcare practice is threatened by Large Language Models (LLMs) fed misinformation (when training) that also hallucinate (when generating). Developments in Deep Learning (DL) informing text generation in LLMs can nevertheless mitigate such risks. Healthcare LLMs trained on the best available science for practicing evidence-based medicine can also be trained on religious beliefs and practices of their patient population in the tradition of rhetorical listening. Regular interactions with an LLM of this kind promises to create more equitable care conditions by providing low-stakes practice in rhetorical listening in a context frequently overwrought with bias and discomfort, namely a person’s religious commitments.

Patients who feel heard by health professionals report higher degrees of satisfaction with their care. Evidence suggests that they also respond better to the health solutions provided. Religiously affiliated patients receive better care when healthcare professionals pay closer attention to the ways religious beliefs and practices shape health-seeking behaviors.

One way to learn to pay attention to such elements is to practice rhetorical listening. Rhetorical listening is a mode of paying careful attention to human interactions, with special attention to linguistic nuance when deliberately exchanging information. The combination of “rhetoric” with “listening” takes what is normally considered a passive state and renders it an active and essential process in human interactions.

We compare interacting with LLMs trained in rhetorical listening to the analogous practice encouraged in medical schools today, namely that of beholding art in museums to train their students to pay closer attention to subtle details communicated in artistic masterpieces, thereby creating better diagnosticians.

V.D. SOCIAL & PSYCHOLOGICAL SCIENCES: INCLUSIVITY IN EDUCATION

Great Room C

Inclusive Citation in Pedagogy and Research: An Essential Approach in Christian Higher Education
Rebecca Dielschneider

Many first-year students begin their university journey with little exposure to diverse perspectives and people groups. This may be particularly true for students attending faith-based universities for two reasons. Firstly, a number of students at faith-based universities complete their grade school education at private faith-based schools or at home. Both private and home schools exhibit less diversity than public schools. Secondly, some Christian communities oppose efforts that promote justice, equity, diversity, and inclusion. Thus, efforts to embrace diversity and promote inclusion may be urgently needed at faith-based universities.

How can professors, in their roles as educators and researchers, do their part to promote inclusion in the classroom? How can pedagogy and research contribute to justice, even if that isn’t a professor’s area of expertise?

One small step is the use of inclusive citation practices. Interest in this approach has grown in the last three years. These practices examine cited sources to see if there is diversity of gender, race, ethnicity, geography, and more. It can examine authors, institutions, and journals. Inclusive citation practices acknowledge how citing choices can perpetuate systemic injustices and show an understanding of how diversity improves research. Professors can enact this approach by intentionally referencing diverse sources in their scholarly work, incorporating diverse teaching materials in their courses, and by requiring their students to examine the sources they cite in their course assignments.

I will provide examples of how I enact this approach in my role as a science professor at a faith-based university in Manitoba, Canada.

**V.A. ENVIRONMENTAL SCIENCES:
PROTECTING BIODIVERSITY
(CONT'D)**

Great Room AB

**Tennyson Beats Heraclitus:
Generating Freshwater
Biodiversity through
Stable Habitats in
Dynamic Landscapes**
David Campbell

Both the design of the church as a body with myriad distinct but interdependent parts and the amazing variety of creation through time and space point to the value of diversity. However, human impacts on creation increasingly require taking actions to protect the diversity of life. Freshwater habitats are heavily affected by human activity, including water use, habitat modification such as dams, and pollution. Likewise, not all diversity is desirable; the addition of non-native species has disrupted many freshwater ecosystems. However, conservation efforts often focus on the more familiar terrestrial areas. Identification of factors promoting freshwater diversity can help to target priorities.

Recent studies suggest that environmental stability is among the most important factors for developing the highest diversity. Ancient lakes have long been recognized as hotspots of biological diversity, with long-term stability facilitating evolutionary radiation. Conversely, rivers are proverbial for change. However, certain river habitats are notably diverse as well, including the major rivers of southeastern North America and southeastern Asia. A combination of climatic and tectonic factors has made the rivers in these regions unusually stable, maintaining varied habitats despite constant river erosion. Thus, these rivers have become like Tennyson's brook, proclaiming "I go on forever," rather than Heraclitus's view that one can't step in the same stream twice. Human alteration of these once-stable environments has been devastating to much of the biodiversity, but restoration has allowed some recovery.

**V.B. ENVIRONMENTAL / SOCIAL
SCIENCES: EDUCATIONAL
APPROACHES TO INTEGRAT-
ING FAITH & SCIENCE (CONT'D)**

Przy 323

**The Missional Model for
Integration of Faith and
Science: A Key to Kingdom
Advancement in Higher
Education**
Daisy Savarirajan

Higher education in the pandemic era is faced with an array of challenges caused by economic instability, social injustice, mass violence, wars, mental health problems, and the lowest levels of biblical illiteracy in the nation. In this situation, Christian institutions of learning have the opportunity to positively impact the lives of students through their Christ-centered missions.

A private Christian university in the southwest is uniquely positioned as a missional community and welcomes students from diverse backgrounds—some of whom may hear the good news of Jesus Christ for the first time. By fostering a strong commitment to the integration of faith and learning, the curriculum and classroom instruction provide several benefits for students pursuing science majors.

One strategy for the integration of faith and science involved incorporating selected Bible topics that are unrelated to the course content. The topics were presented as mini devotionals each week at the beginning of class during the Fall 2023 semester. To analyze the outcome of the devotional modality on student perception, an anonymous survey was conducted for students enrolled in traditional on-ground, undergraduate-level science courses. The overwhelmingly positive and supportive feedback from 155 responses underscores the value of education that encourages both Christian and non-Christian students to seek truth within a context marked by Christian charity and compassion.

In conclusion, this presentation discusses the findings to explore the transformative potential of a missional approach by Christian professors to integrate faith and science effectively in a religiously diverse yet inclusive learning environment.

**V.C. ENGINEERING & TECHNOLOGY:
LARGE LANGUAGE MODELS
AND AI IN HEALTHCARE
(CONT'D)**

Przy 327

**Compassionate Healthcare AI:
Psychological and Theological
Perspectives on Motivation,
Agency, and Self-Reckoning**
Mark Graves

Healthcare applications of Artificial Intelligence (AI) improve clinical accuracy, increase efficiency, and lower costs, but when done carelessly, can interfere with patient care and increase health inequity. Compassion and empathic caregiving positively affect patient outcomes yet are frequently hindered by technology. What if AI could identify and respond compassionately to suffering, transforming a potential harm into a source and means to improve patient communication, trust, health outcomes, and well-being?

In research informed by psychology, neuroscience, and Buddhism, compassion is understood to have affective, cognitive, and motivational dimensions. A further psychological characterization identifies five components: recognizing suffering, understanding the universality of human suffering, feeling for the person suffering, tolerating uncomfortable feelings, and motivation to act/acting to alleviate suffering; with a sixth component suggested in the context of AI technology—attention to the effect and outcomes of the response. The motivational dimension of compassion identifies an open avenue for compassionate AI only recently enabled by advances in AI agency and autonomy.

Drawing upon Dan McAdam's psychological characterization of agency and Daniel Cervone's knowledge and appraisal architecture, I characterize the appraisal and self-reckoning of a proto-self that serves as a foundation for motivated agency by AI. By including a moral dimension and compassionate purpose within the AI appraisal of human suffering, AI can identify and respond to suffering in a prudent and just manner respecting human autonomy and dignity. This characterization of compassion and suffering by AI opens up avenues to improve human health, well-being, and flourishing.

**V.D. SOCIAL & PSYCHOLOGICAL
SCIENCES: INCLUSIVITY IN
EDUCATION (CONT'D)**

Great Room C

**Engaging Climate Science in
the Seminary Curriculum**
Katharine Hinman, Curtis Baxter,
and Leif Castren

As the climate crisis intensifies, faith leaders can play a pivotal role in shaping public perceptions of the causes and impacts of climate change and in guiding policy and community action. While the Pew Research Center found that religiously affiliated Americans strongly believe that God has given humans a duty to protect and care for the earth, most report hearing about climate change little, if at all, in worship services, and highly religious Americans actually report less concern about climate change than do US adults overall.

The Climate Science in Theological Education Project (CSTE) brings engagement with climate science directly into the training of future religious leaders. Run by the Dialogue on Science, Ethics, and Religion (DoSER) program of the American Association for the Advancement of Science (AAAS) and based on the successful Science for Seminaries model, CSTE provides grants to theological institutions to incorporate climate science engagement into coursework and activities of theological students to better equip them to lead their congregations in responding to climate change. Projects are contextualized by the schools to meet the unique needs and concerns of their students and to increase the diversity of communities impacted.

After a successful pilot with six schools, the first full cohort of fourteen institutions has now been launched. We will discuss the activities of the pilot schools and plans for those in the first cohort, expanding on the success of the project beyond the grant recipients, and efforts to further engage scientists in this crucial work.

**V.A. ENVIRONMENTAL SCIENCES:
PROTECTING BIODIVERSITY**
(CONT'D)

Great Room AB

**Conservation and Restoration
in Sturgeon Aquaculture and
Production Systems**

 Steven Hall, Matthew Campbell,
Vashti Campbell, Christopher
Pascual, and Daniel Smith

Aquaculture is the fastest growing protein sector and exceeds wild fisheries. Aquaculture provides high quality protein and excellent feed conversion. Opponents note aquaculture can pollute coastal waters and may have impacts on wild animals and ecosystems.

Genesis 1:20–22 reminds us:

God said, "Let the water teem with living creatures ... so God created the great creatures of the sea and every living thing in the water ... God saw that it was good ... and blessed them to be fruitful and fill the waters ..."

However, with overfishing and habitat loss, many fish species have declined substantially. Using sturgeon, alligators, and others as templates, we will examine combining restoration and culture. The US Endangered Species Act (ESA) addresses conservation consistent with biblical creation care. Sturgeon were historically caught for their valuable caviar. The meat was considered a byproduct. It provides protein but can impact the environment, especially important water resources. Considering sturgeon aquaculture for restoration as well as food allows a restoration-friendly approach to enable once again wild fish to "be fruitful," while also supplying healthy, sustainable protein.

This talk will address some specifics on how aquaculture can be more-fundamentally sustainable and even restoration-oriented. In this way, we can honor the theological imperative to care for creation (Gen. 2:15) and to restore all things (Acts 3:21). Culture, conservation, and restoration of sturgeon species can show how to provide food for humans while caring for God's creation.

**V.B. ENVIRONMENTAL / SOCIAL
SCIENCES: EDUCATIONAL
APPROACHES TO INTEGRATING
FAITH & SCIENCE (CONT'D)**

Pryz 323

**Revisiting the Mond Process:
The Greenest and Most
Creation Care-Sensitive
Approach to Battery-Grade
Metals Production?**

Vlad Paserin

The Bible is believed to have been "inspired by God." What about other great writings and discoveries of science—have these been "inspired by God"? And how about our current and future scientific and engineering work—how do we discern God's inspiration in new processes, technical solutions and advances? Is electric automobile more "godly" than gasoline-powered cars? How can we tell?

The presented case study covers the story of nickel processing methods in light of the large, predicted increase in battery metals demand for automotive applications, starting with discovery of a unique chemical—nickel tetracarbonyl—in 1889 and its application to nickel extraction and refining process in metallurgy. International Nickel Company provided the home for the development of this technology for over 100 years—from early 1900s until its takeover by the Brazilian Vale in 2006.

The history of vapometallurgy, as this science is sometimes called, is quite fascinating. The journey starts in an industrial laboratory in 1889, when Ludwig Mond accidentally discovered nickel tetracarbonyl. He quickly realized the usefulness of this compound in the extraction of nickel (later also iron) and production of high-purity nickel (and iron) products.

We will trace the development of the process culminating in the Sudbury nickel refinery in 1973 and conclude with some up-to-date, active research topics such as industrial production of nanomaterials and application of the principles of chemical vapor deposition in metal additive manufacturing. The attractiveness of the environmental impact of this process, as well as theological perspective, will be highlighted.

**V.C. ENGINEERING & TECHNOLOGY:
LARGE LANGUAGE MODELS
AND AI IN HEALTHCARE**

(CONT'D)

Pryz 327

**Compassion, Manipulation,
and Attribution: Facilitating
Care in Human-AI Interaction**

Thomas Arnold

Anthropomorphism toward AI systems is not an easy psychological dynamic to judge as a whole, whether ethically, technically, or clinically. The social impulses that attribute agency and sentience to machines can enhance the use of AI, but those impulses can be manipulated at the expense of a person's health and dignity. So how should such attributions be understood as a shared concern of design, implementation, and evaluation?

Drawing on previous work in ethics and human-robot interaction (HRI), I propose some care-driven guidelines for ensuring that benchmarks for successful interaction (e.g., "natural language") do not come at the expense of transparency and accountability. In addition to a representational dimension for AI/HRI in care contexts ("Does this represent my beliefs, values, and norms? Are those representations accessible and available for evaluation?"), I propose an accompanying "facilitative" standard (pursued through questions like "How are care relationships and abilities being developed through these interactions? What needs are being met, in concept with what important norms?").

Toward that standard, I suggest how hybrid forms of computational architecture can put the current preoccupation with LLM's to productive test. That care touches on core values and rituals around suffering, flourishing, birth, and death only reinforces how important these standards will be to uphold.

**V.D. SOCIAL & PSYCHOLOGICAL
SCIENCES: INCLUSIVITY IN
EDUCATION (CONT'D)**

Great Room C

**A Theory of Change:
Ecological Crises and Injustice
Are Best Addressed by
a Diverse, Inclusive, and
Welcoming STEMM Education
and Workforce**

 Sharon M. Homer-Drummond
and Carlos Martinez

We are in the midst of anthropogenic systemic change to ecologies at all scales. Novel and emerging diseases, anthropogenic environmental contamination, and climate change synergistically impact the interdependent health of ecosystems, humans, and nonhuman animals (generally referred to as One Health).

Economically developed countries and regions are the primary contributors to anthropogenic change, but the greatest economic, social, and health burdens are born by ecosystems, nonhuman animals, and under-resourced and underserved human communities globally. These burdens are complex, intersectional, and transdisciplinary, but the most impacted communities have frequently been either left out of solutions, or at best, given a performative role.

A theory of change is presented here that centers power to develop solutions and make decisions in impacted communities, which in turn requires systemic change that creates diverse and inclusive STEMM education and workforce ecosystems in order to best effect those solutions.

VI.A. THEOLOGICAL PERSPECTIVES / LIFE SCIENCES: DIVERSE APPROACHES TO THEODICY
Great Room AB

Generational Sin and Epigenetics
E. Janet Warren

The concept of generational sin is based on verses referring to God “punishing children for the iniquity of parents, to the third and fourth generation” (Exod. 20:5). It is popular in some contemporary Christian circles, involving prayers against generational curses, for example. Recently, the field of epigenetics, which examines the effects of environment on genetic expression, has been used to support this idea. I intend to critically evaluate this claim.

First, I examine biblical verses (within lexical, literary, and cultural contexts) that either support or refute generational sin, then consider broader theological concepts, including sin, curses, and intercession. I next review biological studies relating to potential epigenetic transmission of negative effects, especially trauma, and also consider psychosocial effects of trauma. I consider some works linking genetics and sin before concluding that, because generational sin is a dubious biblical concept, search for scientific “proof” of it is futile.

Epigenetics as an explanation for generational sin may be an example of a meaningful parallel in science and faith that is actually coincidental. We need to take care to avoid facile conclusions that can be detrimental. Both science and biblical theology are broad and nuanced. Nevertheless, scientific observations regarding the effects of sin in the world may be informative, and research on communal sin and trauma can inform pastoral counseling and ministry through our one body and many gifts. Ultimately, we are each responsible for our own thoughts and actions. And, thankfully, grace always trumps sin.

VI.B. ENGINEERING & TECHNOLOGY: COMPUTER SCIENCE AND THE WORD OF GOD

Pryz 323

Artificial Intelligence and the Bible Translator’s Assistant
Richard Denton

There has been much progress recently in generative artificial intelligence (AI), as demonstrated by programs such as ChatGpt. Meta (formerly Facebook) developed its No Language Left Behind (NLLB) model using 200 languages and made their software freely available. Subsequently, the Summer Institute Linguistics (SIL, more commonly known as Wycliffe Bible Translators) adapted the NLLB model specifically for Bible translation, using 1,009 translations of the New Testament from the eBible corpus, and also made their software freely available.

SIL and All the Word Bible Translators (ATW) have been doing experiments using SIL’s software. AI-generated draft translations can be useful for Bible translation under some circumstances. At ATW, we have a rules-based translation system, The Bible Translator’s Assistant (TBTA) that generates semantically more-accurate translations (though not necessarily as natural sounding). As another application of AI, we are using an AI model to aid in the development of our “semantic representations,” or English-based source text for use in TBTA.

I will discuss the circumstances for which and extent to which AI is useful for Bible translation, as we currently see it.

VI.C. SOCIAL & PSYCHOLOGICAL SCIENCES: SCIENCE AND FAITH IN STRENGTHENING HUMAN RELATIONSHIPS

Pryz 327

The Evolutionary Origin of the Emotional Rewarding Nature of Personal Relationships: Psychological and Theological Implications
Samuel T. Wilkinson, MD

Abundant evidence indicates that relationships are the most important factor for mental health and well-being. What is less clear is why this is the case. Converging lines of evidence from multiple disciplines suggest that the emotionally rewarding nature of relationships results from the way that evolution shaped social interactions.

Evidence from attachment theory, kin selection, and (to a lesser degree) group selection suggest that the psychological abilities and emotional states that underlie relationship formation were instrumental in the development of cooperation, which was critical to survival during the Pleistocene era. As one example from attachment theory and kin selection, human infants are utterly helpless when they are born and are totally dependent on their parents for survival for many years. This is in contrast with most other animals (foals can gallop when only a day old). As a result, human parents have evolved an incredibly deep feeling of love and attachment toward their children. Abundant evidence supports the hypothesis that the strongest feelings of love and affection are found within family relationships.

Because of the helplessness of our offspring, evolution has prepared us (even compelled us) to care deeply for our children. If nature had created us such that we had no need for deep involvement in caring for our children, we wouldn’t have evolved such deep love for them. This phenomenon unexpectedly reinforces a principle with strong theological implications: If evolution was the mechanism by which all living things were created, then there could be no deep love if there were no compelling sacrifice.

Theological and psychological implications of these findings are explored.

VI.D. CHRISTIAN WOMEN IN SCIENCE

Great Room C

Is There Hope for Evangelical Women? A Historical Reflection on the Cost of Patriarchy
Beth Allison Barr

Hosted by
Becky English

History forgets much more than it remembers, and what it remembers is often what people have chosen to preserve.

I argue in *The Making of Biblical Womanhood* that historical ignorance paved the way for evangelical support of women’s oppression. I also contend that a lack of understanding about the broader cultural impact of these evangelical beliefs contributes to the continuation of oppressive structures even outside of the church.

Historical amnesia comes at great cost for not only women in the church but also for human dignity.

Join me as I reflect on the cost of the subjugation of women within white evangelical spaces as well as why the reception of *The Making of Biblical Womanhood* gives me hope for a better future.

We welcome ALL attendees to join us.

VI.A. THEOLOGICAL PERSPECTIVES / LIFE SCIENCES: DIVERSE APPROACHES TO THEODICY (CONT'D)
Great Room AB

Theological Implications of the Existence of “Offensive” Animals and the Ascetical Opportunities They Provide
Andrew P. Nosal

I will present a theological reflection, from a largely Eastern Orthodox perspective, about hard-to-love animals, which exhibit behaviors so “offensive” that their mere existence may seem incompatible with an all-knowing, all-loving, and all-powerful Creator-God. By “offensive,” I mean behaviors that are perhaps gratuitously vicious or cruel. These might include infanticide in lions, siblicide in boobies, intrauterine cannibalism in sharks, brood parasitism in cuckoos, and parasitoidism in wasps. Because these behaviors are intrinsic to these species, I am interested in what these species reveal about the Creator.

While many have wrestled with the “problem of natural evil,” reconciling the “offensive” creatures themselves has largely been overlooked, and that will be the focus of my presentation. I will not bother with theodicy and try to formulate a defense for why God created such animals, or even why God created a world that could give rise to them. Instead, I will only consider how these animals became so “offensive,” whether they are as God intended, and what should be our response as Christians.

I will draw on the cosmic vision of Saint Maximus the Confessor, who affirmed the fundamental goodness of Creation, that all creatures participate in the proverbial “cosmic liturgy,” and that the vocation of humans, as icons of God and “microcosms” of Creation, is to reflect God’s love by cultivating an all-embracing cosmic love for Creation. Maximus viewed loving this way as an ascetical struggle, and I will argue that “offensive” animals provide just the right opportunities to engage in this struggle.

VI.B. ENGINEERING & TECHNOLOGY: COMPUTER SCIENCE AND THE WORD OF GOD (CONT'D)
Przy 323

Coding the Greek New Testament in an Open Source Environment
Saulo de Oliveira Cantanhêde

Over the centuries, the Bible has been reproduced in various forms, from the scrolls to the codex, from the handwritten codex to the printed books, and more recently to the digital Bible. Each format brought new research opportunities, especially the digital format, such as using probabilistic analysis in linguistic variation, distributional analysis of morphology and syntax of words, and social network analysis.

I report a data conversion project to convert an existing open-source Nestle 1904 Greek New Testament encoded in XML format through Text-Fabric software. The data was converted to an annotated text for linguistic research using Python packages, and it is available in the GitHub repository for programmers and non-programmers.

Also, I developed 57 features that can be grouped into the grid, sectional, lexical, orthographic, text-critical markers, morphology, syntactical and relational features. In addition, a syntactic view side-by-side of the encoded data display, calculated parent and sibling features, features for critical text, and variants in the word lemma and its character. These features can be manipulated offline using the Text-Fabric browser or a Jupyter Notebook.

Further, this project demonstrated how one can use an open source and open data text that targets the general user rather than only the specific needs of linguistic research, how linguistic concepts should have the end user in mind, and the importance of a participative project in the humanities.

VI.C. SOCIAL & PSYCHOLOGICAL SCIENCES: SCIENCE AND FAITH IN STRENGTHENING RELATIONSHIPS (CONT'D)
Przy 327

Being a Body: Embodiment in Faith, Science, and Collectives
Kimberly Bowal

In the rich tapestry of Christian theology, the concept of embodiment stands as a pivotal theme, resonating through the doctrine of the incarnation and the myriad of tangible symbols that anchor faith in the physical world.

Likewise, the understanding of physical matter is crucial to scientific study. The concept of embodied intelligence states that cognitive processes are deeply rooted in the body and its interactions with its environment. This idea has been discussed within the fields of psychology and artificial intelligence, yet there remain some untapped perspectives from the physical sciences.

This presentation will bridge these domains by exploring the concept of embodiment within the Christian faith and scientific inquiry and will expand the dialogue by including insights from collective behaviors.

VI.D. CHRISTIAN WOMEN IN SCIENCE (CONT'D)

Great Room C

Continued Conversation with Beth Allison Barr
Moderated by Dana Oleskiewicz

Join the Christian Women in Science (CWIS) as we continue the conversation with Beth Allison Barr about faithful women and Scripture.

We welcome ALL attendees to join this conversation!

Beth is Professor of History at Baylor University specializing in medieval history, women’s history, and church history. She is the author of *USA Today* bestseller *The Making of Biblical Womanhood: How the Subjugation of Women Became Gospel Truth* (Brazos Press, 2021), *The Pastoral Care of Women in Late Medieval England* (Boydell Press, 2022), and the forthcoming *Becoming the Pastor’s Wife: How Marriage Replaced Ordination as a Woman’s Pathway to Ministry*.

She is also the author and co-author of numerous articles, including most recently co-editing the volume *Regendering the Narrative: Women in the History of Christianity with Church History and Religious Culture* (Dec. 2023). Her work has been featured by NPR and *The New Yorker*, and she has written for *Christianity Today*, the *Washington Post*, *MSNBC*, *Premier Christianity*, *Religion News Service*, *The Dallas Morning News*, *Sojourners*, and *Baptist News Global*.

Beth is also a Baptist pastor’s wife and the mom of two great kids.

VI.A. THEOLOGICAL PERSPECTIVES / LIFE SCIENCES: DIVERSE APPROACHES TO THEODICY (CONT'D)
Great Room AB

Sharing with Young Earthers How the Hebrew Bible Does Not Require a Young Earth

Thomas Patrick Arnold

Part of being one body in Christ is loving correction. "All Scripture is breathed out by God and profitable for teaching, for reproof, for correction" (2 Tim. 3:16). Our young earth brethren claim the Bible requires belief in a young (~6,000-year-old) universe, but the Hebrew Bible does not require this. Yet young earth creationism (YEC) correctly affirms biblical authority. So our correction should start from the authority of the inspired inerrant Hebrew Bible.

- YEC's main defense of a young Earth is Exodus 20:11 that in English says, "For in six days." YEC claims God created everything in six consecutive days about 6,000 years ago. But the Hebrew of Genesis 1 and Exodus 20:11 does not say that.
- YEC says *bereshit* ("In the beginning") means at the start of day one. But the Hebrew does not mean that.
- YEC claims "very good" means a perfect world until Adam's sin. But the Hebrew does not mean that.
- YEC says "no animal death" before Adam's sin. But the Greek New Testament does not say that.
- YEC claims Mark 10:6 teaches Adam was at the start of creation. But the Greek does not mean that.

Instead, the Hebrew Old Testament and Greek New Testament teach a biblically undated universe and Earth, allowing (but not dating) an older creation and allowing animal suffering and death before Adam. A literal Adam, with Joshua Swamidass's genealogical hypothesis, allows a literal "For as in Adam all [humans] die, so also in Christ shall all [believing humans] be made alive" (1 Cor. 15:22).

VI.B. ENGINEERING & TECHNOLOGY: COMPUTER SCIENCE AND THE WORD OF GOD (CONT'D)
Przy 323

Exploitation of Social Media by Disinformation Campaigns

Tim Wallace

Authoritarian governments are on the rise globally, and their efforts to intimidate their neighbors and repress segments of their own population have resulted in sanctions and hostility to the West, reminiscent of the Cold War. The attacks on Ukraine by Russia, and Israel by Hamas, as well as the continued civil war in Syria, have pushed things into the hot war arena.

Rather than getting our common news from a few newspapers, radio, and TV stations as in the last century, many people today rely on incredibly complex and personalized social media. Social media have facilitated division, sometimes automatically sorting their users into compatible groups which are quite incompatible with each other, just to maximize engagement and revenue, as we have discussed in a previous meeting.

The authoritarians are engaged in a kind of asymmetrical warfare against the West, exploiting the open nature of our societies while locking down their own. Troll farms pretending to be foreign citizens generate divisive social media content and support the viewpoints favored by their sponsors. Russia pioneered this approach in 2016 with interference in the US and Brexit elections. China operates the popular TikTok site, which steers discussion in China-friendly directions, while banning all Western social media in China.

The goal of this talk is to make Christians more aware of these efforts and better able to recognize propaganda techniques. As people of the truth, we should stand against this dangerous assault on the truth.

VI.C. SOCIAL & PSYCHOLOGICAL SCIENCES: SCIENCE AND FAITH IN STRENGTHENING RELATIONSHIPS (CONT'D)
Przy 327

Generative AI as a Familiar Yet Radical Paradigm-Shift for Christian Churches

Daren Erisman

This presentation focuses on the impact of artificial intelligence, specifically generative AI, in the life of churches. There are abundant comparisons between the invention of the printing press and the advent of the Internet. However, this presentation proposes that the Internet and its relatively slow introduction in the form of the World Wide Web is only a stepping stone to the paradigm change of generative AI.

Comparing the periods of the printing press of the fifteenth century and generative AI of the twenty-first century, it is worth exploring how a new technology surrounded by socio-political-economic forces can affect the life of individuals in church communities and influence even the larger sense of the Church itself.

Drawing from Western and non-Western expressions of the Christian Church, this presentation explores what wisdom can be gleaned from past paradigm shifts accompanying technologies like the printing press as they apply to today's familiar sense of unease and opportunity regarding generative AI. Specific attention is paid to potential changes in job opportunities and sense of vocation, the role of spiritual leadership and chaplaincy, and the connection between church growth and technology.

We are all struggling to make sense of what is coming—both its potential and foreboding aspects. A frank look at the past and a cautious gaze at our future Church is a conversation worth having.

VI.D. CHRISTIAN WOMEN IN SCIENCE (CONT'D)

Great Room C

Continued Conversation with Beth Allison Barr

Moderated by

Dana Oleskiewicz

Join the Christian Women in Science (CWIS) as we continue the conversation with Beth Allison Barr about faithful women and Scripture.

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Beth is Professor of History at Baylor University specializing in medieval history, women's history, and church history. She is the author of *USA Today* bestseller *The Making of Biblical Womanhood: How the Subjugation of Women Became Gospel Truth* (Brazos Press, 2021), *The Pastoral Care of Women in Late Medieval England* (Boydell Press, 2022), and the forthcoming *Becoming the Pastor's Wife: How Marriage Replaced Ordination as a Woman's Pathway to Ministry*.

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Beth is also a Baptist pastor's wife and the mom of two great kids.

Student Poster Contest

Graduate and undergraduate students submitting posters will be entered into the student poster contest. We are excited to honor exceptional student work at the Annual Meeting.

Posters will be judged on the following criteria:

- Overall Clarity of Presentation: Visual interest, Readability, Balance between text and visuals, Title, Authors, etc.
- Elements and Flow: Title and authors, Statement of purpose and significance, Description of research
- Quality of Research: Key references to support findings/ conclusions
- Graphs and Data presentation: Do they support the conclusions? Are they readable and clear?

The winner will be announced at the Sunday night Ice Cream Social and InterVarsity Reception.

1

Sweating the Small Stuff: Double Your Diversity in One Incredibly Time-Consuming Step

Timothy D. Campbell, Lyle D. Campbell, and David C. Campbell

Although many studies of biological diversity focus on large, well-studied taxa, most species are minute members of understudied, cryptic groups. This presents an obvious challenge in learning about and preserving creation. One case in which this bias is apparent is for fossil mollusks. They preserve well, as most species have durable and identifiable skeletons; many inhabit shallow marine environments, an ecosystem conducive to fossilization; and mollusks span a broad size range.

The focus of my research is documenting the molluscan fauna of the basal Pleistocene Waccamaw Formation of the coastal Carolinas, including microscopic taxa. This has revealed a far more diverse fauna than was previously known, rivalling that of a comparable area in the northern Caribbean today, but with constituent taxa indicative of conditions only slightly warmer than the Recent. The fauna also had much greater levels of endemism than the recent Carolinian province does. Almost 30% of the species and 9% of the genera appear to be undescribed, and about 54 families were not previously reported from the formation. The mollusks present are spread across the taxonomic and ecological diversity of mollusks. The fauna also shows significant differences in ecological metrics across size and taxonomic levels, and rank-abundance and rarefaction curves that taper off more slowly than expected.

These metrics indicate that extremely large samples, precise identifications, and small specimens are required to thoroughly document a fauna. Due to their implications about measurements of diversity, and about responses of organisms to past changes in climate, study of deposits like this is significant for conservation efforts.

2

Cellular MicroRNA-31-5p Restricts Oncogenic Human Herpesvirus Lytic Reactivation by Down-Regulating the Host RNA-Binding Protein KHDRBS3

Soo Mi Lee, Christopher Avalos, Christos Miliotis, Hannah Doh, Erica Chan, Kenneth M. Kaye, Frank J. Slack

Oncogenic Kaposi's sarcoma-associated herpesvirus (KSHV), an etiological agent of Kaposi's sarcoma and primary effusion lymphoma, is a double-stranded DNA virus that displays two distinct life cycles: latent and lytic replication phases. KSHV reactivation from latency to lytic replication is essential for viral spread, persistence, and oncogenesis. Here, we identify microRNA-31-5p (miR-31-5p) as a potent antiviral host factor capable of restricting KSHV lytic reactivation. Ectopic expression of miR-31-5p in KSHV latently infected cells impairs lytic viral gene transcription and production of lytic proteins and infectious virions during KSHV reactivation. miR-31-5p overexpression also significantly down-regulates critical viral early genes, including the main KSHV transcription factor replication and transcription activator (RTA) required for lytic reactivation. Leveraging high-throughput transcriptomics and phenotypic analyses, we demonstrate that miR-31-5p restricts KSHV reactivation by directly targeting the host RNA-binding protein KHDRBS3, suggesting a critical role for KHDRBS3 in facilitating KSHV lytic reactivation. Our study suggests that the RNA-binding protein KHDRBS3 may serve as an essential proviral factor for oncogenic DNA virus lytic reactivation by regulating RNA processing and shaping viral and host RNA landscapes important for productive lytic infection. Taken together, these findings reveal a previously unrecognized antiviral miR-31-5p/KHDRBS3 axis that restricts KSHV reactivation and propose that therapeutic strategies that exogenously augment miR-31-5p would contribute to suppressing oncogenic herpesvirus lytic replication and hence the development of KSHV-induced malignancies.

WISH | Women in Science and Humanities

ASA Women - We need your input!

The Templeton-funded WISH Program (led by former ASA Executive Director Leslie Wickman) aims to support Christian women from all disciplines who are interested in exploring connections between science & faith.

Join us in *shaping the future* by helping us build relevant programming that is informed by women. Please take our survey about your experiences and insights, or learn more at wishprogram.org.

Take the Survey

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3

Identification of Cellular Signatures Predictive of Human Prostate Cancer Progression

Chloe Liu, Eleonora Scarlata, Simone Chevalier, and Luke McCaffrey

Prostate cancer is the most frequent nonskin cancer in men and mortality is often related to the unavailability of treatment for advanced and recurrent disease. Therefore, early detection is important for interventions before the tumor becomes aggressive and incurable. However, the high prevalence of undiagnosed prostate cancer in autopsies suggests that not all cancers need to be treated. Inaccurately diagnosing a slow-growing cancer as aggressive can result in emotional distress and depression in men. This inaccuracy, known as overdiagnosis, also leads to overtreatment, which misuses healthcare resources and can produce side effects that decrease quality of life with no therapeutic benefit.

Although certain markers are clinically available to identify cancer, the biology of how prostate cancer progresses is poorly understood. To reduce overdiagnosis at early detection, we characterize features of precursor cells that initiate aggressive cancers. From examining the prostates of multiple patients, we identified 4 features in early cancer including the way the cells organize, the proteins they express, and a combination of both. We then used clinical data to determine which of these features can predict the development of aggressive tumors over time.

To take care of God's creation as biochemists, we can practice faithful stewardship by better understanding the nature of cancer to improve clinical care, which addresses both medical and psychosocial concerns. Through this study, we seek to minimize cancer misdiagnoses and provide appropriate interventions in the pursuit of human flourishing that God intended.

4

Analysis of Anthelmintic Effects of Novel Compounds Using *C. elegans* as a Model Organism

Raegan Melhorn, Justin Hockaday, and Brian L. Ellis

About 1.5 billion people globally are infected with the soil transmitted helminths (STHs) *Ascaris*, whipworm, and hookworm. These parasitic infections are most concentrated in tropical and subtropical regions with inadequate access to clean water and poor sanitation. The effects of these parasitic infections, while often nonlethal, are devastating; they deplete host nutrients while dampening the immune response, perpetuating the cycle of poverty and subsequent infections. The pharmaceutical options available to treat parasites are limited, due to the high cost of production and low profitability. The World Health Organization (WHO) has approved four drugs for mass administration (MDA) but of the 4, only 2 different mechanisms of action exist, and data indicates drug resistance is emerging. Thus, new drugs with different mechanisms of action are desperately needed.

Recently, the Medicines for Malaria Venture Pathogen Box provided researchers with a library of 400 compounds for the purpose of screening for possible new treatments of neglected tropical diseases (NTDs). Previously, Partridge et al. tested this library on *C. elegans*, a free-living nematode that is in the same family as the helminths mentioned above, and they found multiple promising compounds.

We evaluated the effectiveness of the drugs from one plate of the library in combination with albendazole, the drug of choice for MDA, using *C. elegans* in the L4 stage as a model. We found three possible compounds of interest, which significantly decreased the health of the worms when administered with albendazole, compared to drug alone. Importantly, these drugs have different mechanisms of action than the ones used for MDA.

Our preliminary follow-up data with one of the three drugs has yielded promising results, showing a dose dependent decrease in worm health at all of the doses in combination with albendazole compared with the drug alone.

5

The Hidden Diversity of the Gut Phageome: Characterizing Novel Lifecycles and Exploring the Role of Two Phagemids in the Context of Bacterial Pathogenicity

Shaina B. Selles, Heather M. Prior and Tracy L. Raivio

Bacteriophages have been studied for over a century, but our understanding of their abundance in the context of the gut microbiome is just being uncovered. Many bacteria that reside in the gut microbiome harbor numerous dormant viruses inserted in their genomes (prophages).

To model dynamics underlying the pathogenicity of human pathogenic *Escherichia coli*, we use *Citrobacter rodentium*, a murine gut pathogen that harbors two relatively unstudied prophages. We are studying these two phages with hopes of understanding their role in bacterial virulence and colonization strategies.

In the first part of this study, we explore the novel lifecycle of these two phages to (1) characterize and examine their replication as phagemids (capable of plasmid replication), and (2) begin to characterize their lifecycles in the context of their contribution to host pathogenicity and physiology. This study points to the novel functions phage encode and demonstrates the importance of these functions in context of their bacterial host.

Secondly, we assess the diversity of known phagemids and explore their abundance in related *Enterobacteriaceae* species and distant relatives. Study of *Enterobacter* phagemids has expanded our view of phage diversity and demonstrates the complexity of phage biology, particularly the ever-evolving nature of phage. Phagemid evolution could be a large contributor to the hidden diversity within the gut phageome.

Understanding this vast diversity can provide us with one more lens to glimpse the beauty of divine creation and to appreciate both the integrated harmony as well as the incredible complexity within bacteriophage and their hosts.

6

Faith And Phytotherapy: A Holistic Approach to Mental Health

Ethan Sipes and Daisy Savarirajan

According to the World Health Organization (WHO), one-fifth of students in higher education have various mental health issues such as depression, anxiety, and stress. While religion positively impacts mental health, the excessive use of social media contributes to adverse consequences for mental health.

In contrast to antidepressant drugs which are known to cause severe side effects, herbal anxiolytics offer a more natural and safer alternative for mental health problems. This study aimed to (1) explore the effects of religious practice and social media use on the mental health problems of college students and (2) evaluate the anxiolytic properties of plants to address the need for safe and effective alternatives to antidepressants.

A representative sample of 136 undergraduate students pursuing science majors at a private university in the Southwest participated in an anonymous survey. Self-rated mental health (SRMH) was assessed with a questionnaire that was answered using a five-point Likert scale (1 = very poor, 2 = poor, 3 = neither poor nor good, 4 = good, 5 = excellent).

The findings of this study will be presented along with the significant anxiolytic effects of two flavonoid compounds extracted from *Opuntia ficus indica*. The realization that humanity cannot rely solely upon synthetic medications leads one to reflect upon the reality of God's purpose in creating medicinal plants (Gen. 1:29, Ezek. 47:12). Ultimately, ascertaining plant-based treatments is a gateway to diminishing mild or moderate mental health disorders.

7

The Rothermel Foundation: Faith Based Diversity of Ideas

Philip Smith

The dialogue between faith, science, and society is active in a small town in Eastern North Carolina (New Bern) thanks to the generosity of Amel Rothermel. Mr. Rothermel provided a substantial financial gift after his passing (1987) to establish a foundation to engage persons who are leading experts in fields of the sciences, medicine, humanities, history, ethics, theology, and religion.

The mission of the Rothermel Foundation as stated in his will is

to stimulate thinking and discussion about the diverse aspects of the part played by a Supreme Being in the formation of the universe, in the development of life on earth, and in demonstration of the infinite love He has for humanity and for its continuing existence.

The foundation is administered by the First Presbyterian Church of New Bern and is governed by an ecumenical and inter-faith Board of Trustees consisting of members from area houses of worship (Presbyterian, Methodist, Episcopal, Baptist, Catholic, Temple B'Nai Sholem, and al-Masjid Islamic Center & Mosque).

To accomplish its mission, the Foundation Trustees have conducted numerous lecture programs for the community. The lectures are well received and are quite diverse in subject matter. Examples include the following: the science and ethics of stem cell and gene editing research, neuroscience and experience of addiction, climate change and environment, archeological discoveries in the Holy Land, a vision of women in church and society, a new dialogue between science and religion, and what Americans need to know about Islam and Muslims. Past speakers have included three ASA members.

8

Psychedelics and Religious Experience

Martin Soliman and
Cahleen Shrier

There are many psychedelics explored in modern day to help with mental illnesses such as depression, post-traumatic stress disorder (PTSD), obsessive-compulsive disorder (OCD), anxiety, addiction, and much more. The most common psychedelics used are lysergic acid diethylamide (LSD), psilocybin, and methylenedioxymethamphetamine (MDMA).

Psychedelics are hallucinogenic substances and are more often used illicitly. They are primarily known for their capacity to induce alternate mental states and an apparent expansion of consciousness; individuals perceive a broadening of their awareness. Each psychedelic has its own neurological effects, but they all lead to altered states of consciousness. The known neurological mechanisms of psychedelics will be described.

In addition, this presentation will discuss the Santo Daime religion which has a special psychoactive beverage that aids them in their spiritual journey. The beverage is called daime and is made up of the ayahuasca brew. Ayahuasca is considered a sacrament in psychological healing ceremonies within the Amazon Basin. Its use has an increasing popularity among mestizo populations in South America and has spread through the Western world. Another group, União do Vegetal, also uses ayahuasca. Substances like ayahuasca, psilocybin, LSD, or even MDMA have the capacity to alter consciousness, leading individuals to report enhanced spiritual experiences. But are these real spiritual encounters?

9

Herbs for Healing: Antibacterial Efficacy of Essential Oils Alone and in Combination with Herbal Extracts

Ramesh Velupillaimani,
Samuel Blackledge, Maria Marin,
and Riza Kremer

Antimicrobial resistance is a vastly growing major public health problem which constitutes bacteria becoming resistant to medications, progressively making diseases and infections harder to treat. Plants and essential oils used in traditional medicine may contain a wide range of potentially bioactive compounds that can be used to treat various infectious diseases. Therefore, the present study aims at evaluating the antibacterial activity of essential oils and herbal extracts against Gram-positive and Gram-negative bacteria.

Ethanol extracts (80%) were obtained from *Caesalpinia cassioides*, *Celtis occidentalis*, *Simmondsia chinensis*, *Calliandra californica*, *Cesalpinia cassioides*, *Acacia linifolia*. Essential oils used were Cinnamon (*Cinnamomum zeylancium*), Lemongrass (*Cymbopogon flexuosus*), Oregano (*Origanum vulgare*), Thyme (*Thymus vulgaris*) and Eucalyptus oil (*Eucalyptus globulus*). Kirby-Bauer plate diffusion technique was used to test their antibacterial activity against *Streptococcus salivarius*, *Enterobacter cloacae*, *Pseudomonas aeruginosa*, *Staphylococcus epidermidis*, *Staphylococcus carnosus*, *Pseudomonas putida*, *Escherichia coli*, and *Mycobacterium smegmatis*.

Essential oils from *O. vulgare*, *E. globules* showed maximum antimicrobial activity against *M. smegmatis*, followed by *E. coli*. The leaf extracts from *C. cassioides* registered high antimicrobial activity against *S. salivarius*, followed by *P. aeruginosa*, and *P. putida*. Evaluation of synergistic effects of herbal extracts with essential oils will also be discussed. God is the source of all healing. The Bible mentions the use of herbs for medicinal purposes. Psalms 104:14, says that God provides us with "herbs for the service of man." The book of Exodus describes the use of bitter herbs during Passover meal.

INDEX OF 2024 PRESENTERS

A

Anderson, David6, 11
Arnold, Thomas6, 26
Arnold, Thomas Patrick7, 29

B

Barr, Beth Allison 6, 7, 10, 27–29
Best, Vicki 6, 21–23
Bliss, Lowell4, 17
Bowal, Kimberly7, 28
Braband, Lynn6, 24
Briggs, Jennifer4, 15
Brown, Ed4, 16

C

Campbell, David6, 25
Campbell, Timothy5, 30
Campbell, Victoria5, 20
Cannon, Fred S6, 21
Carr, Paul4, 14
Clements, David5, 19
Collins, Francis5, 9
Curry, Janel 4, 15–17

D

Davis, Edward4, 13
de Oliveira Cantanhêde, Saulo7, 28
Denton, Richard7, 27
Dielschneider, Rebecca6, 24

E

Eagleson, Hannah 4, 12–14
Elwood, John5, 20
Erisman, Daren7, 29

F

Fernández Soto, Daniel6, 23

G

Graves, Mark6, 25

H

Hall, Steven6, 26
Halsmer, Dominic5, 19
Hinman, Katharine6, 25
Homer-Drummond, Sharon6, 26

J

Jelsma, Tony5, 18
Johnson, Jay4, 12
Jordan, William6, 21

K

Kaita, Robert 4, 12, 15–17
Kankelborg, Charles4, 14
Kim, Walter5, 9
Knox, John6, 23

L

Larrabee, David4, 15
Lee, Soo Mi5, 30
Liu, Chloe5, 31
Lyman, Sophie4, 13

M

Madison, Beth6, 24
Marshall, Perry4, 16
Martinez, Carlos6, 26
Martino, Charitie4, 15
McKibbon, George6, 22
Medenwaldt, Jay 4, 15–17
Melhorn, Raegan5, 31
Moore, E Maynard4, 12
Moyer, Joanne6, 23

N

Nosal, Andrew P7, 28

O

Oleskiewicz, Dana5, 6, 7, 19, 21–23, 28–29
 Olsen, Cyrus P6, 24
 Owens, Josh5, 18

P

Painter, Jim5, 19
 Parker, Mark5, 20
 Paserin, Vlad6, 26
 Pimentel, Sam5, 18
 Premkumar, Finney4, 14

R

Royal, Charmaine4, 8

S

Savarirajan, Daisy6, 21–23, 25
 Schuurman, Derek C6, 22
 Schuurman, Peter4, 16
 Schwartz, Dwight4, 15–17
 Selles, Shaina5, 31
 Sethupathy, Praveen3, 8
 Shrier, Cahleen5, 6, 18, 32
 Siegrist, David6, 22
 Sipes, Ethan5, 6, 21–23, 31
 Smith, Philip5, 32
 Soliman, Martin5, 32
 Strand, Mark4, 6, 17, 21–23
 Stump, Jim6, 21

U

Unander, David4, 17

V

Vaidyanathan, Brandon7, 10
 Velupillaimani, Ramesh5, 32

W

Wallace, Tim7, 29
 Warren, E Janet7, 27
 Wiens, Roger4, 13
 Wilkinson, Samuel7, 27
 Wood, John5, 20
 Woodman, Julie5, 6, 20, 21–23

1. Opus Hall
2. Millenium North
3. Kane Fitness Center
4. Millenium South
5. Garvey Hall
6. Edward J. Pryzbyla University Center (Pryz)
7. McMahon Parking Lot
8. BROOKLAND-CUA Metro Stop

- Lodging & Fitness
- Conference Programming
- Other Locations of Note

