Science, Faith, Humanity, & Earth’s Future

The American Scientific Affiliation’s
Southern California Christians in Science Chapter
2017 Day Conference

9 AM – 5 PM on Saturday, January 27th, 2018
California Baptist University, Riverside, CA
Conference Schedule

8:30 – 9:15 AM  Registration & fellowship over light refreshments in the Business Building Breezeway (#38 on the map)

9:15 – 9:30 AM  **Welcome and Opening Remarks**  
Business Building, Innovators Auditorium Side A (#38 on the map)

9:30 – 10:45 AM  **Morning Plenary: "The Necessity of Death in Biological and Christian Theological Perspective"**  
John R. Wood, The King’s University, Edmonton, Alberta, Canada  
Business Building, Innovators Auditorium Side A

10:45 – 11:00 AM  Refreshment break, Business Building Breezeway

11:00AM-12:30PM  **Morning parallel sessions**  
Business Building, Innovators Auditorium Side A and room 125 - see the schedule on the following pages for locations and presentation titles

12:30 – 1:30 PM  Lunch in Alumni Dining Commons (#6 on the map)

1:30 – 3:00 PM  **Afternoon parallel sessions**  
Business Building, Innovators Auditorium Side A and room 125 - see the schedule on the following pages for locations and presentation titles

3:00 – 3:30 PM  Refreshment break, Business Building Breezeway

3:30 – 4:45 PM  **Afternoon Plenary: “Back to the Future of Energy on the Back of an Envelope”**  
Terry Gray, Colorado State University  
Business Building, Innovators Auditorium Side A

4:45 – 5:00 PM  Closing Comments & Farewell  
Business Building, Innovators Auditorium Side A
## Morning Parallel Session Schedule

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| 11:00 – 11:30 | Jesus, Beginnings, and Science: A Guide for Group Conversation  
David Vosburg  
Harvey Mudd College | Retrofit or predictive modeling? A critique of Concordism  
Chong Ho Yu  
Azusa Pacific University |
| 11:30 – 12:00 | Science for Youth Ministers  
Cahleen Shrier, and Marian Saleh  
Azusa Pacific University | The Genesis Creation Accounts and Christian Approaches to Chemistry  
Stephen Contakes  
Westmont College |
| 12:00 – 12:30 | Christian Education for Life — Using Prayer for Problem Solving  
Craig Rusbult  
University of Wisconsin-Madison (retired) | The Tree of Complexity: How the Universe is Built from Relationships  
J. Mailen Kootsey  
Simulation Resources, Inc. |

## Afternoon Parallel Session Schedule

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<th>Time</th>
<th>Session 1B – Faith, Science, and Stewardship</th>
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| 1:30 – 2:00 PM | Acquisition of environmental science knowledge and the development of theological position between human and nature  
Mark Reyes, Chong Ho Yu, Anthony Yung, Louise Huang, Lorena Garcia, Calvin Dong, and Angel Bernal  
Azusa Pacific University | Origin of Life Research Update  
Hugh Ross  
Reasons to Believe, Sierra Madre Congregational Church |
| 2:00 – 2:30 PM | Using Scripture to Effect Conservation “Conversion” of Theologically Conservative Christians  
Mark Stephen M\(^2\)Reynolds\(^1\) and Karen E. M\(^2\)Reynolds\(^2\)  
\(^1\)A Rocha USA,  
\(^2\)Hope International University | Effects of Engineered Nanomaterials on the Behavior and Embryonic Development of the Nematode, *Caenorhabditis elegans*.  
Melissa Antonio, Brigitte Buchanan, Bailey Dahlgren  
California Baptist University |
| 2:30 – 3:00 PM | Faith Integration as a Transforming Experience for Pre-Clinical Students  
Kathleen G. Tallman  
Azusa Pacific University | Cutting-Edge Cutting Technology: Made Possible by Our Faith & Perseverance  
Effat Zeidan,  
California Baptist University |
Morning Plenary Session

“The Necessity of Death in Biological & Christian Theological Perspective”

John R. Wood, The King’s University, Edmonton, Alberta, Canada

The phenomenon of death remains a central question for natural and social scientists. I recently discussed physical death in ecological processes, briefly exploring the implications of programmed cell death in ecology. There is continuity across biotic endings that extends from cells to the biosphere. And these physical endings have implications for the practices of caring for the creation. The traditional views of stewardship and the story of Adam and Eve are increasingly challenged by the suggestion that death plays a positive role in the created order. Today the mechanisms of aging and death are carefully studied by a wide range of natural scientists. And new anti-aging therapies, including part-and whole body replacement techniques are presenting unique challenges to the traditional view of death in a biblical context. Historians and philosophers have suggested that the dominate views of life and death today arise, surprisingly, from esoteric debates preceding the Reformation. It could be that the technical debate on the univocity of being - the character of God and the creation - between Thomas Aquinas and John Duns Scotus can give us new insight into the thorny questions of the fruitfulness of creation. Death on this view turns out to be a necessity.

Dr. John R. Wood is Professor Emeritus at The King’s University. He is on the Board of Global Scholars – Canada and is the Vice President of the American Scientific Affiliation Executive Council. Dr. Wood’s research interests lie in urban ecology, campus sustainability and global food security. He has studied the behavior of White-tailed Jackrabbits and their population fluctuations in Edmonton. And together with Dr. Heather Looy, he has explored how new food adoption practices are influenced by one aspect of Western exceptionalism – our cultural blind spot toward food insects. His recent publications include An Ecological Perspective on the Role of Death in Creation, Imagination, Hospitality, and Affection: The unique legacy of food insects?; How Then Shall We Eat? Insect-eating attitudes and sustainable foodways; and Stewarding the Gift of Land: Christian campuses as land management models.
Energy use on planet Earth is expected to go up three-fold by 2100. With just a handful of assumptions we can map out what our energy future will look like. Knowing that future we can then think about what it will take to get there. The assumptions are the following: (1) The human population will stabilize at 10 billion; (2) Every nation will be as developed as modern western European nations with a Human Development Index (HDI) of 0.9 and a per capita energy use of 150 GJ per person; (3) Energy will be carbon neutral; and (4) Water for domestic use and irrigation will be produced by desalination at US levels today.

From assumptions 1 and 2, we conclude the global energy use to be 1500 EJ—just under triple 2016 global energy use (550 EJ). In the US, 170 billion gallons of water per day are used for public water supply and for irrigation. On assumption 4, we conclude that producing that much fresh water via reverse osmosis will take 100 EJ of energy—a mere 6.6% increase.

1600 EJ is about 50,000 1 GW power plants (actual production not simply nameplate). Assumption 3 means that these power plants are all new. Today there are fewer than 2,000 1 GW carbon-free power plants (nuclear, hydro, wind, solar, geothermal). 580 new 1 GW carbon free power plants per year are needed by 2100 to meet the expected global energy demand.

Dr. Terry Gray received his B.S. in Molecular Biology from Purdue University in 1980 and his Ph.D. in Molecular Biology from the University of Oregon in 1985. He has been a biology, chemistry, and biochemistry instructor/professor at Calvin College, Colorado State University, and Front Range Community College. He was also a staff scientist in the Chemistry Department at Colorado State University where he wore many hats: IT support, network and system administration, instructional computing, and computational chemist. He has conducted research in the areas of protein structure, stability, and folding at the University of Oregon, Calvin College, and Texas A&M University. Energy is a mid-to late-career interest being spurred on by teaching Chemistry 103, the chemistry course for non-science majors, and Natural Sciences 640, "Energetics for Educators," a course on energy topics for science teachers, at Colorado State University. From those teaching efforts he has co-written two eTextbooks: Energy: What the World Needs Now and Molecules of Life with a Chemistry Bootcamp. He has been a Christian as far back as he can remember and has been interested in the intersection of religion and science most of that time. In 7th grade he wrote a defense of the compatibility of evolution with the Biblical account of Adam and Eve for some anti-evolutionist friends he went to church with. More recently he was active in dialog with Philip Johnson, Mike Behe, and others in the Intelligent Design movement. That dialog ultimately landed him in the midst of controversy in the Orthodox Presbyterian Church over faith-science and human origins matters. He contributed two chapters to Perspectives on an Evolving Creation, edited by Keith Miller (2003, Eerdmans). He has been a member of the ASA since 1994. For many years he maintained and "moderated" the ASA email discussion list and with Jack Haas was active in developing and maintaining the ASA web site during its first two decades. With Randy Isaac and Emily Ruppel he was the recipient of an Evolution and Christian Faith grant from BioLogos to improve the accessibility of ASA on-line resources. In 2016 he published "ASA Does Not Take an Official Position on Controversial Questions" in Perspectives on Science and Christian Faith. Terry lives in Fort Collins, Colorado with his wife Shari with five children and two grandchildren still residing in the Fort Collins area.
### Jesus, Beginnings, and Science: A Guide for Group Conversation

David Vosburg  
Harvey Mudd College

We wrote Jesus, Beginnings, and Science (Pier Press, 2017) to spark gracious and productive discussions about science and faith. Our book invites individuals or groups to examine several passages from Scripture that offer perspectives on God’s creation, human origins, and science. Alongside the Bible studies, the sessions invite participants to engage common questions about the Bible and science. At the end of the guide, discussion leaders and others who wish to explore topics more deeply will find many additional suggested resources. A unique feature of our book is that it starts with Jesus rather than Genesis. John 1, Colossians 1, and Hebrews 1 all speak to Jesus’ role in both creating and sustaining the universe. This approach offers an easy entry point for Christians—and interested non-Christians—to engage the intersection of faith and science in a way that honors multiple viewpoints.

### Science for Youth Ministers

Cahleen Shrier, and Marian Saleh  
Azusa Pacific University

Faculty from the Department of Biology at Azusa Pacific University (APU) participate in specifically selected class sessions taught by faculty from the Youth and Family Ministry program in order to more faithfully teach science to our students preparing to lead in Church and parachurch ministries. In addition, a new senior level course has been developed to address many science topics and the implications for ministry. This course will be offered for the first time and will start in January 2018.

All APU students are required to take a general education science course, but until now none of our Youth and Family Ministry students were taught how to synthesize what they learned in science in order to best facilitate conversations on science in their ministries. Youth Ministry students are taught how to critically reflect on the connections that already exist between the content of faith and the sciences, learning how to understand the relationships between the two disciplines not as adversarial but instead as different languages describing the same phenomena within our world.

Traditionally, these discussions are not a part of future youth ministers’ coursework.

Exposure to this dialogue during their education is essential. APU strongly believes that youth ministers must be equipped with 1) understanding the relationship between faith and science; 2) what and how each teaches us; and 3) how to synthesize and think through apparent conflicts. This drives the collaboration of the Youth and Family Ministry program and the Department of Biology to offer the Science for Youth Ministers Program at APU.

### Christian Education for Life — Using Prayer for Problem Solving

Craig Rusult  
University of Wisconsin-Madison (retired)

Broadly defined, a Problem is any opportunity to “make things better” in any area of life, so Problem Solving includes almost everything you do. And in everything you do, God wants to help you improve your problem-solving effectiveness, for the purpose of pursuing His goals and (usually) your goals. How? When you pray, God can help you improve in many ways, including... your understandings of God, yourself, and other people; your compassion for others; your love for God and people, actualized in your attitudes, relationships, and actions; your wisdom in making decisions about actions; the results of your actions, the overall effects on all life-situations, for others and yourself.

In every area of life, your prayers can be beneficial in many ways, when... God provides insights and guidance, through Holy Spirit, to help you think better, and transform your character; you pay attention to your process of problem solving, by asking "can I think better in creatively generating ideas, and critically evaluating ideas?" and "what is the best use of my time? (i.e. what should I do now, and later, trying to make things better?)" and, with empathy & self-empathy, "what do they want? what do I want? how might we achieve a better win-win result?" and other process-questions; you pause for relaxing interludes that can be naturally refreshing.

As one aspect of students’ education for life, we can show them the many benefits they will receive when they ask God to help them improve every part of their problem-solving process, as throughout each day they are creatively Generating Ideas and — by comparing Predictions & Observations (made in Mental Experiments & Physical Experiments) with each other, and with their Goals for a satisfactory Problem-Solution — are critically Evaluating Ideas, using creative-and-critical cycles (Generate and Evaluate, Generate and Evaluate,...) of Design Thinking, often using cycles of "Plan, Do-and-Observe, then Re-Plan, Do-and-Observe,..." to learn more from their experiences in life. For more information, designprocesedinusacollege.com/prayer

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### Oral Presentation Abstracts (Continued)

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Some religious apologists insist that Scripture contains scientific truths. This approach of harmonizing Scripture and science is known as Concordism. For example, Jewish physicist Gerald Schroeder asserted that through the lens of relativity it is entirely possible for God to create the world in six days. As Psalms 90: 4 says, “A thousand years in your (God) sight are like a day that passes.” In a similar vein, Canadian Christian astronomer suggested that the Book of Job entails the knowledge of an expanding universe, dark matter, and dark energy. Indeed, Concordism is subject to the fallacy of apophenia: A psychological tendency to attribute meaning to perceived connections between unrelated matters. The theory of an expanding universe is supported by the works of Edwin Hubble, Arno Penzias, and Robert Wilson. However, they never said that their research was inspired by the Book of Job. Similarly, no scientist ever declared that their research on dark matter and dark energy is built on the foundation of the Bible. We can easily find some verses in the Bible that seem to be compatible with modern scientific concepts, but this type of retrofit has no predictive power at all. During the 16th and 17th centuries Job 38: 4 (Where were you when I [God] laid the earth’s foundation?) and Psalm 104: 5 (He [God] set the earth on its foundations, so that it should never be moved) were often quoted to support the notion that the earth is a stationary planet. British Christian mathematician John Lenox defended the scientific soundness of Scripture by saying that God has built certain stabilities into the planetary system that guarantees its existence. In this case, no matter whether the earth is immovable or orbiting around the sun, the Bible is still considered compatible with science. If a theory can never be falsified, then it has no scientific merit. Retrospectively fitting scientific data into Bible verses is easy. The acid test of Concordism is whether today Christian scientists can develop a scientific theory based on the Bible, and then the theory is verified with empirical data in the future.

This paper will provide an overview of some of the themes in my chapter on “Chemistry, Christianity, and Wisdom” in the upcoming *Where Wisdom Might Be Found*, edited by Ed Meadors. Specifically, it will examine how Genesis’s portrayal of humanity and the created order are infused with wisdom that can inform and enrich for the practice of chemistry. First, Genesis’ portrayal of material creation as good, ordered, sustained by God, subject to God’s faithful control, and a humanity made to image God as it stewards creation provides a theological foundation for valuing both creation itself and chemists’ efforts to make sense of the world. Second, although chemistry’s capacity as a source of revelation should not be overstated, Genesis’ picture of God ordering a chaotic creation which then serves as a locus of God’s relationship with humanity broadly agrees with chemistry’s atomic-molecular model of reality in which predictable properties emerge from molecular motions and collisions occurring under the constraint of well-understood forces. It also agrees with the existence of “anthropic coincidences” in the properties of matter which make Earth ant this universe fortuitous place for the existence of life like ours, although the existence of sin and natural evil point to the importance of eschewing chemistry as a source of tidy theological answers at the expense of a faith that sees in part while seeking understanding. Third, chemists can view God’s command to care for, fill, subdue, and replenish the material world as a calling to advance science and innovation for both the welfare of humankind and creation’s ultimate good. However, in exercising the *imago Dei* through their craft, Christian chemists should do so humbly in awareness of human frailty and our need for redemption and the leading of the Holy Spirit, practically expressed in a rejection of simplistic narratives of progress through chemistry and acceptance of responsibility for the foreseeable outcomes of their work, the latter involving a commitment to moral reflection, both personally and in dialogue with the church and world.

From the time of Plato and Aristotle to the 16th Century CE in the Western world, the accepted view of the universe and its inhabitants was the Great Chain of Being. This Chain was a hierarchy with God at the top, descending through angels and a stratified human society, down through more strata for animals and plants, to end at “rocks” – the levels distinguished by their degree of “soul”. This presentation describes a different hierarchy descriptive of contemporary science and it naturally includes other human activities from education and commerce through religion and the arts. This contemporary hierarchy is the Tree of Complexity. In the 17th and 18th Centuries, early pioneers of modern science such as Galileo and Newton stimulated research in isolated fields, each field with its own language, methods, and instruments. These fields of research, such as Physics, Chemistry, Biology, and Geology, gave rise to the core scientific disciplines and academic science departments, but the fields remained thoroughly separated. By the middle of the 20th Century, recognition was beginning to dawn that multidisciplinary thinking could advance science. The Tree of Complexity gives structure to such thinking and multiple advances in understanding and practice become possible. This presentation will include brief discussions of three such benefits: common features of research in scientific fields and why there are differences; the importance of relationships in scientific theories and human activities; and some insights into the science-religion interface.
Prior research indicated that Evangelical Christians and Christians who subscribe to the view that the Bible is the literal revelation of God tend not to support environmental protection. Various theories had been proposed to explain this phenomenon, such as favoring the spiritual over the physical; eschatology as the destruction of this world rather than renewing the cosmic order, etc. As a remedy, a faith integration component emphasizing the duty of stewardship was included in a science class at a Southwestern Christian University. The aims of this study are three-folded: First, the research team examined the channels of information used by the participants to acquire their knowledge of environmental science and develop their theological position on the relationship between human and nature. Second, based upon the survey data the research team studied whether faith status of the participants (I continue to attend church and have faith in Christ, I still attend church but have serious doubts of my faith in Christ, I have not attended church for over one year but I maintain my faith in Christ, I am not attending church and have abandoned my faith in Christ) influenced how they developed their attitudes towards environmental protection and selected their information sources. Third, the research team investigated whether the faith integration program could influence how they selected data sources and whether they would re-consider their theological position after the treatment. This can shed light in the holistic approach of environmental science education at other Christian universities.

| 1B – Faith, Science, and Stewardship, Business Building, Innovators Auditorium Side A |
|-----------------------------------------------|-----------------|-----------------|
| 1:30 – 2:00                                 | 2:00 – 2:30     | 2:30 – 3:00     |
| **Acquisition of environmental science knowledge and the development of theological position between human and nature** |
| Mark Reyes, Chong Ho Yu, Anthony Yung, Louise Huang, Lorena García, Calvin Dong, and Angel Bernal  
Azusa Pacific University |
| Conservation of God’s good creation is one desired outcome of many Christians working in the natural sciences. Unfortunately, conservation issues have become politicized and some theologically conservative Christians (TTCs) have either consciously or inadvertently supported the diminishment of conservation efforts. How can natural scientists who are Christian effectively address conservation issues with TTCs? Because no other authority is as readily accepted by TTCs, I propose that scripture is required to “convert” them to an attitudinal (and biblical) posture supportive of conservation of God’s creation. Because Old Testament scripture has often been misinterpreted by Christians, and many of them believe the New Testament to be more applicable to daily life, I assert that New Testament scripture is most effective in addressing conservation issues with TTCs. Key New Testament passages dealing with creation are found in the first chapters of the Gospel of John, in Hebrews, and in Colossians. These scriptures unambiguously describe Jesus involved in creating all things, sustaining all things and holding all things together, inheriting all things, and even dying to reconcile all things. Via word study and context, the phrase “all things” is shown to be quite expansive, including both human and non-human aspects of creation. I argue that if Jesus has been so intimately and sacrificially involved in all of creation, it follows that imitation of Jesus by Christians today would involve support for conservation efforts and the work of Christians working in the natural sciences. |
| **Using Scripture to Effect Conservation “Conversion” of Theologically Conservative Christians** |
| Mark Stephen M Reynolds⁠¹ and Karen E. M Reynolds⁠²  
¹A Rocha USA, ²Hope International University |
| Conservation of God’s good creation is one desired outcome of many Christians working in the natural sciences. Unfortunately, conservation issues have become politicized and some theologically conservative Christians (TTCs) have either consciously or inadvertently supported the diminishment of conservation efforts. How can natural scientists who are Christian effectively address conservation issues with TTCs? Because no other authority is as readily accepted by TTCs, I propose that scripture is required to “convert” them to an attitudinal (and biblical) posture supportive of conservation of God’s creation. Because Old Testament scripture has often been misinterpreted by Christians, and many of them believe the New Testament to be more applicable to daily life, I assert that New Testament scripture is most effective in addressing conservation issues with TTCs. Key New Testament passages dealing with creation are found in the first chapters of the Gospel of John, in Hebrews, and in Colossians. These scriptures unambiguously describe Jesus involved in creating all things, sustaining all things and holding all things together, inheriting all things, and even dying to reconcile all things. Via word study and context, the phrase “all things” is shown to be quite expansive, including both human and non-human aspects of creation. I argue that if Jesus has been so intimately and sacrificially involved in all of creation, it follows that imitation of Jesus by Christians today would involve support for conservation efforts and the work of Christians working in the natural sciences. |
| **Faith Integration as a Transforming Experience for Pre-Clinical Students** |
| Kathleen G. Tallman  
Azusa Pacific University |
| Clinical examples are often used in basic science courses to demonstrate the relevance and application of material to clinical practice. At a faith-based institution it is also important to prepare students to be compassionate and caring practitioners. How does one “teach” empathy? Does this have a place in basic science curriculum? In a recent course, examples of abnormal gait initiated a sense of shock or disbelief for some students as they perceived the impact on daily life. A series of faith integration assignments using published literature provided a context for understanding the roles of curing and healing from a Christian world view. In the first faith integration assignment “Learning to Cure, but Learning to Care?” B. Michalec compares the psychological and medical definitions of empathy. The author proposes that empathy would receive greater focus from students if it is tested on exams. In a second article entitled “What are Bodies For: An Integrative Examination of Embodiment” E.L. Hall describes multiple world views of embodiment including dualism, modernism, post-modernism, social science, and theology. Students discuss embodiment in the context of cadaver anatomy. In the third article “Your Faith Has Made You Well: Healing and Salvation in Luke 17:12-19” F.J. Gaiser discusses the story of the ten lepers who were cured and the one who returned to Jesus to give thanks. Students discuss the difference between cure and healing in the story and how they relate to embodiment as discussed in the second assignment. Jesus’ demonstration of compassion is compared to the psychological and medical definitions given in the first assignment. When students expressed shock and disbelief at gait patterns and the effects on mobility, these faith integration assignments provided a rich context for discussions regarding compassion, imago dei, human dignity, disability, healing, and cure. In the end, exam questions were used as one way for students to respond to the class experience. Knowing that many students in the course were in the medical school application process and may not study medicine in a faith-based medical school spurred and encouraged addressing these issues at the pre-clinical stage. |
Fazale Rana, biochemist and staff scholar at Reasons to Believe, and I attended the XVIIIth International Conference on the Origin of Life (ICOL) at the University of California, San Diego, July 15–21, 2017. The two of us have also updated our book, *Origins of Life*. In this talk I will describe the laboratory machinery and controls needed to duplicate some of the critical chemical pathways essential for any naturalistic origin-of-life model. I will describe the latest attempts to solve the homochirality problem and give updates on the quest to find habitable exoplanets and to determine the environmental conditions of early Earth. I will review the conference’s highlight, an evening panel discussion involving five of the world’s top origin-of-life researchers answering the question, “Can the formation of building blocks of life be considered as solved?” For a number of different reasons all five panelists answered, “No.” They concluded that not even the assembly of the building blocks of the building blocks of life can be considered a solved problem.

Different from other ICOL conferences we have attended, the XVIIIth offered much more time for informal interaction. Our dialogues with origin-of-life researchers revealed that many of them were default atheists. They had not thought much about atheism and were unaware of credible alternatives to atheism. They were eager to talk to us about our testable biblical creation model on life’s origins.

**Effects of Engineered Nanomaterials on the Behavior and Embryonic Development of the Nematode, *Caenorhabditis elegans*.**

Melissa Antonio, Brigitte Buchanan, Bailey Dahlgren
California Baptist University

Since *Caenorhabditis elegans* (*C. elegans*) are soil-dwelling organisms in the environment we are interested in probing the question of how the exposure of specific engineered nanomaterials (ENMs), namely molybdenum disulfide and graphene oxide, may pose a threat to living organisms. Although the use of ENMs is increasing, concern of adverse effects on soil communities is also rising. Not only are ENMs toxic to various organisms in soil, “but can bioaccumulate, trophically transfer and even biomagnify in some systems.” It is crucial that the behavior of ENMs in soils, and ultimately in organisms that thrive in the soil such as *C. elegans*, is well studied and understood to prevent negative impacts to the environment.

The data we have collected thus far consists of preliminary findings testing the effects of heavy metals, such as CdCl₂, CuSO₄, and ZnSO₄ on the mobility/behavior of toxicity mutants and wild type strains. We will soon proceed with exposing both strains to the ENMs mentioned above and observe potential effects on behavior and embryonic development.

Although we use this very simple model system for our studies described above, it is fascinating to know that part of their genome overlaps with humans. About one-third of the *C. elegans* genetic code is shared and conserved with humans. One of the goals of our research is to demonstrate the significance of using a simple model system, such as nematodes, to better understand the effects of environmental toxins in humans. Most importantly, the beauty of this is to highlight the fact that our most glorious Creator used the same information, the same genetic code, to bring about life on this planet! This is one aspect in which science and faith can come together.
Are you a member of the ASA? If not, please consider joining America’s premier organization for Christians in the Sciences.

The American Scientific Affiliation (network.asa3.org), or ASA, was founded in 1941 as an international network of Christians in the sciences. As scientists, members of the ASA take part in humanity’s exploration of nature, its laws, and how it works. As Christians, ASAers want to know not just how the universe operates and came into being, but why it exists in the first place.

Why are we here, and why seemingly alone among all creatures do humans possess the qualities required for scientific research — like curiosity, creativity, and a sense of purpose? When and how did we become this way, and what does that say about our relationship with God?

Who are we, really?

We in the American Scientific Affiliation believe that God is both the creator of our vast universe and is the source of our ability to pursue knowledge — also, that honest and open studies of both scripture and nature are mutually beneficial in developing a full understanding of human identity and our environment.

Two things unite the members of the ASA:

- belief in orthodox Christianity, as defined by the Apostles’ and Nicene creeds.
- a commitment to mainstream science, that is, any subject on which there is a clear scientific consensus.

For those topics on which there is no consensus and further study and analysis is needed, ASA members are dedicated to promoting ethically and methodologically sound research and dialogue.

The ASA is not an advocacy organization. Where there is honest disagreement on an aspect of science, Christian faith, or the relationship between the two, the ASA strives to create a safe environment in which dialogue can flourish and diverse, even contrasting, ideas can be discussed with courtesy and respect.

Should I join the ASA? If so, what level of membership is right for me?

Anyone interested in the objectives of the Affiliation may have a part in the ASA. Simply go to our website at http://network.asa3.org/ and click on the “join ASA” tab under the membership menu. All categories of ASA membership (except for Followers) include a subscription to the ASA journal, Perspectives on Science and Christian Faith. Student Basic and Family memberships include an electronic-only subscription.

**Follower:** Receive our free mailings and meeting notices for ASA and local chapters and groups

**Subscriptions** to Perspectives on Science and Christian Faith (PSCF) are available at $50/year (individuals), $85/year (institutions) and $20/year (students).
Student Basic: Available free of charge to anyone enrolled in an undergraduate or graduate program or advanced high school students; Electronic publications only; not eligible for annual meeting free registration or scholarship

Student: Premier membership available at $20/year to anyone enrolled in an undergraduate or graduate program or advanced high school students; Print copies of PSCF are offered as well as electronic; eligible for annual meeting free registration and scholarship

Member: Open to all persons with at least a bachelor's degree in science who can give assent to our statement of faith. Science is interpreted broadly to include anthropology, archaeology, economics, engineering, history, mathematics, medicine, political science, psychology, and sociology as well as the generally recognized science disciplines. Philosophers and theologians who are interested in science are very welcome. Members have voting privileges and can hold office. Regular Member dues are $85/year.

Associate member: Available to interested nonscientists who can give assent to our statement of faith. Associates receive all member benefits and publications and take part in all of the affairs of the ASA except voting and holding office. Associate member dues are $85/year.

Family members may qualify for a reduced rate of $15/year. Select your requested member type and later you will be able to select “family” rates. Family members are defined as household members residing at the same address. The PSCF subscription is electronic-only.

Full-time overseas missionaries are entitled to a complimentary membership.

Friend: An individual or student wishing to participate in the ASA without giving assent to our statement of faith may become a Friend of the ASA. Friends may select the membership for which they qualify. All benefits for each membership type apply except for voting rights and holding office. Friend dues are the same as the selected membership type.