

THE INSTITUTE FOR ADVANCED PHYSICS

The Institute News

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- Physics & Culture magazine: *What is Amercia?* by Dr. Anthony Rizzi

Nineteenth Annual IAP Members Conference

*by Ken Klenk, Ph.D., IAP Certified Member
 photos courtesy of Maikel Garcia*



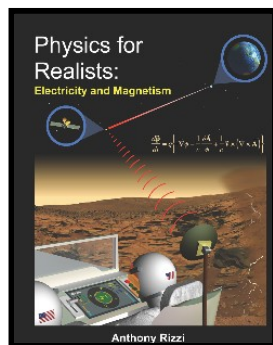
(left to right)(back row) Fr. Neal Nichols, Fletcher Williams, Ed Howard, Brandon Roach, Ben Luna, Ethan Robson, (middle row) Maikel Garcia, Randy Nichols, James Louviere, Dr. Murray Daw, Anthony DiCarlo, Dr. Anthony Rizzi, Don Caffery, Giuseppe Rizzi, (front row, kneeling) Dr. Ken Klenk, Anthony Coniglio, Brendan D’Amato, Brian Lane, (front row, standing) Frank Camacho (holding laptop featuring online participant Dr. John O’Connell), Dr. Stephen Strickland (holding laptop featuring online participants Dr. Dan Lejeune and David Giroir), and Nicolo Rizzi (not pictured)

Annual conference story continued from page 1...

IAP's 19th annual summer conference, *Physics for Realists: Quantum Field Theory III*, was held on July 21-24, 2021. The conference was by invitation only and was held on the campus of Louisiana State University observing COVID restrictions. Lunch at *Chipotle Mexican Grill* kicked off the event.



The conference began on Wednesday as faculty member, **Dr. Murray Daw**, (photo top right) led a session reviewing many important features of ***Physics for Realists (PFR)***, especially ***PFR: Electricity and Magnetism (PFR-E&M, 2011)***. This provided an excellent opportunity for the participants to review, deepen, and challenge their understanding of the **fundamental physical principles at the advanced level of specification** of the ***Physics for Realists series*** of textbooks.



Wednesday evening the attendees gathered for a round table discussion of various topics related to the **consequences of the scientism in our culture**. One topic that generated much interest was how our empiriological culture views intelligence, wisdom, and character. The current view is:

Wisdom is doing things that feel good (and sometimes are good) but aren't connected with intelligence. That is, intelligence is radically separated from the moral order. Consequently, wisdom is outside the intellectual domain since it is related to the good. So, one can be intelligent without having wisdom and one who is wise does not have to be intelligent.

Of course, this is crazy. As Dr. Rizzi says, in so far as something is good it is intelligible and vice-versa! Wisdom results from following the

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4 steps of learning (see *The Four Steps to Learning*, Rizzi, *Physics & Culture* magazine (2014)) in core areas and, thereby, living an intelligence-infused and directed life, one directed to Truth. Wisdom is the result of good character, which is a result of building the virtues, which is a result of true learning. Wisdom therefore flows from virtue, learning, and ultimately from intelligence. As Dr. Rizzi emphasizes, this does include simple but good people, as they have the fundamental intelligence and goodness that arises from living the fundamentals well. IAP Assistant Professor of Practice **Fletcher Williams** led the discussion on wisdom, sparking discussion with videos from popular figures such as Jordan Peterson.



Thursday morning after Mass and breakfast, **Dr. Anthony Rizzi**, IAP founder and Director, began the conference with a welcome and introduction. During his remarks, he discussed how **scientism doesn't like distinctions**. It flattens out reality. It wants to make everything pure potency so that we can make artifacts, things whose essence, by definition, being in our head thus are decided by us. There is a substitute in scientism for the truth, it is the empiriological success, i.e., better empiriometric understanding of the world, as well as the technologies (artifacts) that arise from it, that support an empiriological grounded world. In this way our world is mind-centered, not reality centered,

not physically-centered. This is why **our culture is really over-spiritualized and not materialistic**. Everything is an artifact from the systems in our minds, and nothing has substance. At base, it is the equation-only way of thinking that leads to this, our scientized world.

Dr. Rizzi went on to discuss the foundational ideas for the *Quantum Field Theory* textbook, beginning with a look at Lagrangian and related formalisms and what they infer about the physical world. His investigations are concerned with **uncovering the fully physical reality embedded in the equations**.

Dr. Rizzi **welcomed new IAP members** and presented certificates of Associate Membership to **Brandon Roach, Edward Howard, and Benjamin Luna**, and a certificate of Associate Humanities Membership to **Brendan D'Amato**. (See photos on page 10)

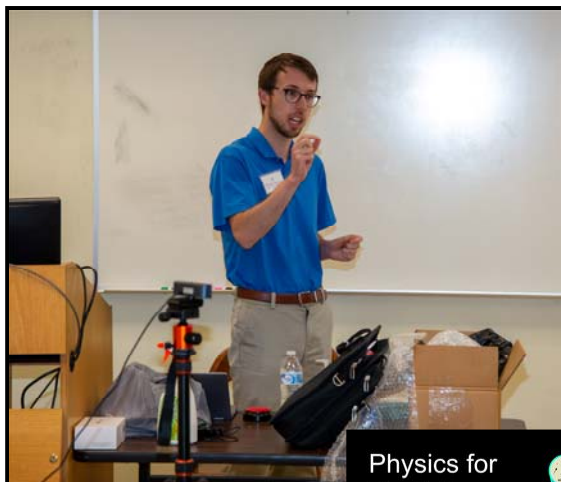
A special **Distinguished Service Award** was presented to Associate Member **Father Neal Nichols**, FSSP, for his many years of unflinching service as chaplain to the Institute. (See photo on page 10)



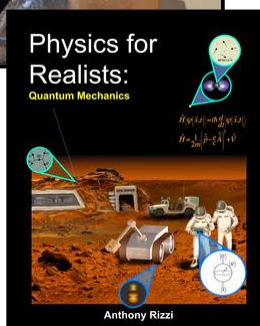
Thursday afternoon sessions were centered on **quantum field theory** (QFT) itself with Dr. Rizzi leading discussions. He covered path integrals and their formal (quantiological) connection with Brownian motion and then showed the connection to the Schrödinger equation.

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After that session, Fletcher Williams discussed measurement in QM as revealed in **Physics for Realists: Quantum Mechanics** (PFR-QM). He discussed the false concept of wave function collapse and the many worlds interpretation that follows from the common quantum mechanical interpretation and contrasted that to the minimal interpretation that assumes no new physics beyond the equation, the ensemble approach of PFR-QM, that takes a statistical interpretation of the wavefunction. As shown in PFR, **measurement leads to a new quantum state** and not a collapse of the wave function with a need, for example, to have all infinite possibilities realized among many distinct worlds.



Dr. Rizzi then discussed the non-relativistic limit of the Klein-Gordon and the Dirac equations and showed how the **quantum mechanics naturally incorporates E&M**. And, he discussed the relation of Fourier analysis to QM.

Also, during the afternoon, one group broke out to discuss **problem sets for the QFT textbook** and another group, led by Fletcher Williams, to discuss QM and determine a list of problems in the *popular* understanding of QM that should be addressed in the text.

Several brief presentations followed before adjourning: Associate Member **Giuseppe Rizzi** discussed **how physics affects the lives of young people**.



Associate Members **Frank Camacho** and **Maikel Garcia** discussed the **IAP virtues** and how they have been disseminating them to IAP members using small group meetings, as well as the virtue app that is under development

Fletcher Williams gave an update on the development of the **IAP university**.

After dinner, the members met in the LSU West Campus Activities center and spent time interacting with the **physics experiments** that Certified Member **Dr. Stephen Strickland** set



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up to illustrate fundamental principles from all three *Physics for Realists* texts, *Mechanics*, *Electricity & Magnetism*, and *Quantum Mechanics*, including a hydrodynamic bouncing oil-drop demonstration that is an analog for the particle and guiding wave structure in QM. Dr. Strickland's well-thought-out experiments were a lot of fun for everyone.



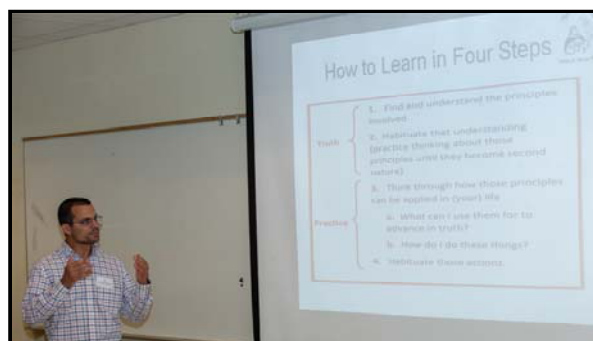
The group then turned its attention to the topic of *What is America?* Dr. Rizzi played an audio (of David McCullough's 1776) that recounted the events surrounding **George Washington's and his troops' crossing of the Delaware River** from Pennsylvania to New Jersey on Christmas night of 1776.



Washington was inspired by the idea of justice for all in forming the new nation. He knew Providence would assist in such a cause. The victory at Trenton and at Princeton manifested his courage and general virtue as well as, what he would call, the interposition of Providence in those pivotal victories. George Washington's inspiring appeal to his men

about the chance in front of them to do good that may never come again succeeded in inspiring almost fully spent men with almost no resources to re-enlist, thus revealing that men can be successfully led to act for the good, even very difficult-to-attain good. The IAP group discussed the virtues and character of George Washington.

In the Friday morning session, Dr. Rizzi began with a discussion of the **PFR Quantum Field Theory textbook**, which might include general relativity and string theory. There is some thought that a good existing quantum field theory textbook would be selected as a reference to refer to for some of the detailed mathematical presentations in order that the PFR-QFT text could stay focused on discussing the fuller physical understanding.



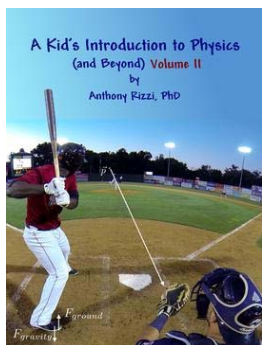
Next, Membership Director **Mr. Anthony DiCarlo** discussed *Living What You've Learned, Step 3ing IAP*. He talked about the **urgency of integrating fundamental physics into our daily lives** by going through the four steps of learning spelled out in the article by Dr. Rizzi (see *The Four Steps to Learning*, Rizzi, *Physics & Culture* magazine (2014)). He pointed out that all true friendships are about growth in truth.

Dr. Rizzi presented several insights around a topic he called **The Scientism after Science**. This title was inspired by a comment made by an IAP member when studying *The Science before Science*. He suggested this topic as the follow-on result of the empiriological mindset that was created by the misunderstanding of the modern scientific method. Dr. Rizzi explains that the scientism, which arises from

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an equation-only physics, leads to a flattening of distinctions that should be made from the nature of things. The French Revolution was the first (and devastating) example of scientism trying to impose its political implications in the violent way scientism breeds. He went on to show how the scientism has been developing since the time of the modern scientific revolution (the advent of the empiriological method), making the *need* for the work of the Institute most *urgent*.



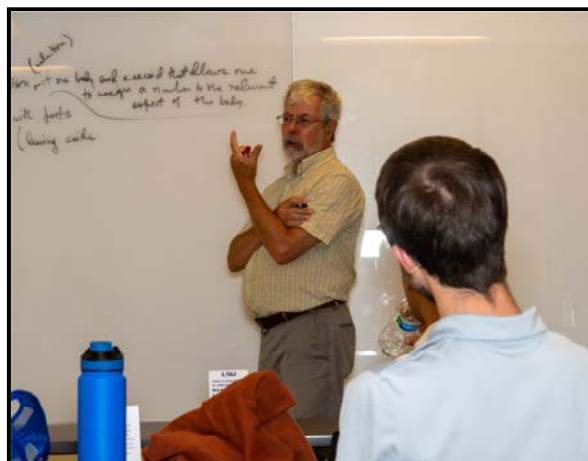
Frank Camacho pitched three questions on *A Kid's Introduction to Physics (and Beyond)*, Vol. II in **KIP II: Members up to bat: Three pitches.**

The Friday afternoon sessions began with listening to a shortened form of ***Brave New World* by Aldous Huxley** which served for stimulating a discussion on the deep and disturbing impact of the equation-alone physics in our world.



Dr. Rizzi continued his discussion of the *Quantum Field Theory* **textbook development**, discussing the topic – *From Dirac Phase and Potential Momentum to the Strong Force*.

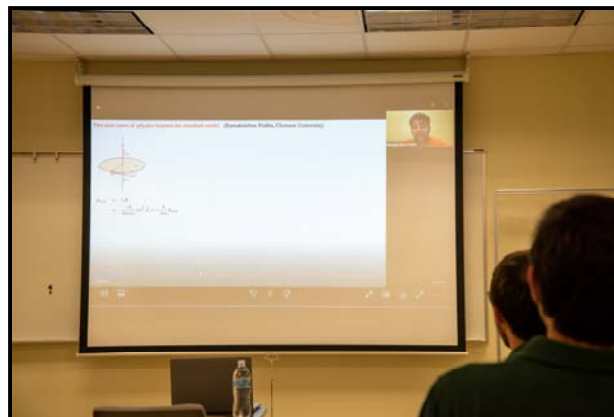
Visit the IAP website to watch **Quantum Field Theory** lectures (empiriological) at Clemson University by physicist **Anthony Valentini**
[Control Click here](#)



IAP faculty member Dr. Daw discussed the



Standard Model in some detail. During this time, some members attended parallel meetings: 1. *biology* and 2. *building principles*. Dr. Rizzi spoke about a de Broglie-Bohm look at QFT massive bosons.



Certified Member **Dr. Rama Podila** discussed, via video, the **anomalous magnetic moment of the muon** and suggested that perhaps therein is a place for further physics discoveries since the

experimental evidence that there is a small part of the magnetic moment that is not explained by known effects.

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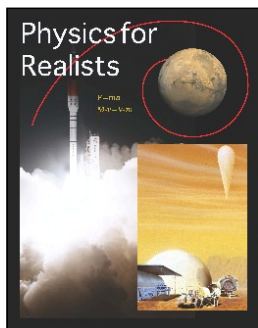
Annual conference story continued from page 6...



Mr. DiCarlo discussed how the Institute could increase its visibility through social media and other means.



Mr. Camacho summarized the status of the Mars mission currently underway including the successful JPL mission that landed a rover on Mars this past February and flew a helicopter!



Physics for Realists Mechanics' profound unity of principle is complemented by a unity of practice through the challenge of a manned mission to Mars by AD 2030, which is the current commitment of the US. Real world problems and examples salt the text, helping the student to ground his thinking and see the importance of physics to everyday life.

The Friday evening session included several short presentations:



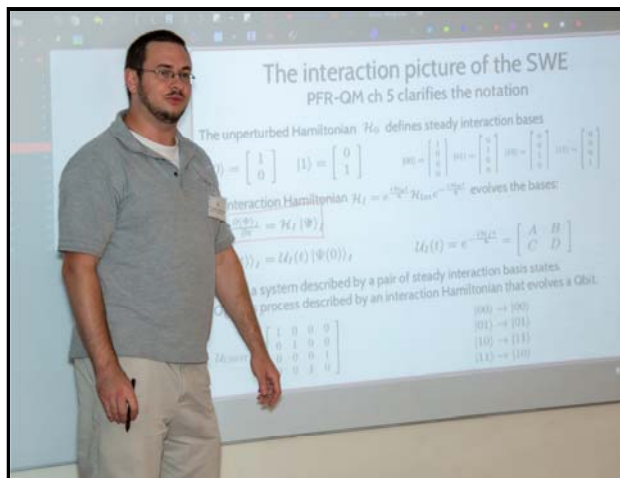
Associate Member **Anthony Coniglio** presented a short talk called *QM: Shaky Game* where he discussed a book from 1984 written by a philosopher of science, Arthur Fine, in which Mr. Coniglio was able to demonstrate instances of scientism embedded in the way people think about modern science.



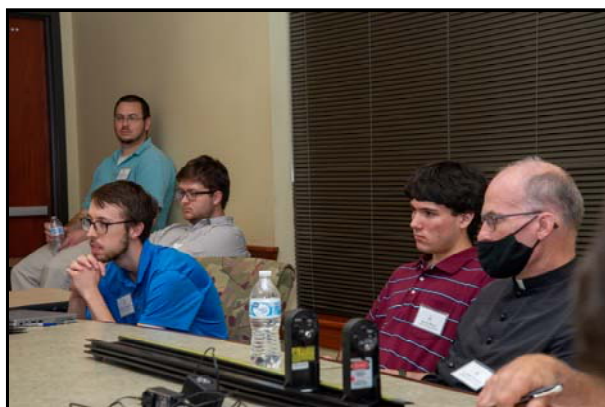
Certified Member **Dr. Ken Klenk** presented an update on the migration of birds and the quantum mechanical mechanism that may be involved. The entanglement of electrons in what are called radical pairs is the leading candidate for their sensitivity to the earth's magnetic field and involves a variation in the population of singlet and triplet states depending on the orientation to the field; Dr. Strickland discussed Quantum Computing and gave an update on the progress toward it becoming feasible.

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An interesting discussion on the proper role and duty of a physics society such as IAP occurred Friday night. This was followed by a deep discussion on the IAP virtues that led us without realizing, because it was so interesting, deep into the night.



Saturday morning the members gathered for Mass and then for breakfast.

Father Neal Nichols, FSSP, celebrated daily mass and was available to hear confessions. The members are extremely grateful to him for his presence during the conference.

The conference was full of real fun and fellowship that can only happen around growth in truth. **End**



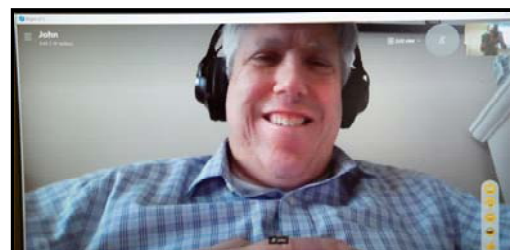
Article contributor Dr. Ken Klenk has been an IAP Certified Member since 2006. He works as an independent consultant. He has managed space and earth science projects in support of NASA Goddard Space Flight Center, Jet Propulsion Laboratory and the U.S. Geological Survey.



Photos courtesy of Maikel Garcia. Maikel has been an IAP Associate Member, Level II, since 2013. He is currently teaching: Adjunct Professor, Physics and Astronomy at Odessa College; Adjunct Professor, Mathematics at Austin Community College; Instructor at Leander High School, Leander, TX.



Note: Group photo on page 1 photoshop on laptops courtesy of Associate Humanities Member John Paul Ochoa



New members receive their IAP certificates from Dr. Rizzi



Left: Brendan D'Amato
Associate Humanities Member



Right: Ed Howard
Associate Member



Left: Ben Luna
Associate Member



Above: Brandon Roach
Associate Member



*Left: **Distinguished Service Award***
was presented to Associate Member
Fr. Neal Nichols, FSSP, for his many years of
unfailing service as chaplain to the
Institute for Advanced Physics

Physics Experiments

The conference participants met in the LSU West Campus Activities center and spent time interacting with six physics experiments that Certified Member **Dr. Stephen Strickland** set up to illustrate fundamental principles from all three *Physics for Realists* texts: Mechanics, Electricity & Magnetism, and Quantum Mechanics. Dr. Strickland is an Assistant Professor of Physics at Samford University.



Using a flat track, cart, and two fans, Strickland demonstrated principles of **impetus, mass, and force.**



Ampere's force Law experiment: (top right and middle-left)
Using a car battery, a switch, and jumper cables, the cables would attract or repel when nearly 800 Amps of current flowed through the circuit. The attraction and repulsion evidence that charge, when activated by impetus, can cause and receive a new field, the magnetic field.



Double slit diffraction with light: (left)
By sending red and green laser beams through an aperture with two narrow slits and onto a screen, an interference pattern develops on the screen as the light propagates from the slits like spherical waves according to Huygen's principle.



The Franck Hertz experiment with Neon: (left)

By sending electrons through rarefied Neon gas, the neon gas lights only when the energy of the electrons reaches a minimum energy of roughly 20 eV, thereby showing the quantized nature of energy in atoms.



The Faraday wave and bouncing droplet experiments: (top-right, middle left & right)

In vigorously vibrating a dish filled with silicone oil, Faraday waves emerge on the fluid surface making striking patterns as seen in your picture. When vibrated slightly less vigorously, the waves recede, but the vibrated fluid can support droplets that bounce on the surface, akin to a paddle ball but without the string. Supported in this way, the droplets are guided by waves generated from their own bounce resulting in a macroscopic analog to the interaction of the particle and its guiding wave structure, misleadingly called, outside IAP, wave-particle duality.



Magnetic braking: (bottom left)

Using an inclined track, cart, and a magnet attached to the cart, the cart slowly descended the incline at a constant speed. We were shown that the magnet has no attraction to the track when held near it at rest. However, when the cart is moving, the strength of the A field produced in the *plana* by the magnet increases in the part of the track being approached and decreases in the part being receded from. The A-field activated *plana* gives impetus to electrons in the track to resist this changing A-field. This current results in a magnetic force back on the magnet, which works against the force of gravity acting to pull the cart downward along the slanted track.

Experiment photos courtesy of Maikel Garcia

Remembering Dr. Jian He

by Murray Daw, Ph.D., Certified Member



It is with deep sorrow that we announce the loss of our friend and colleague Dr. Jian He. Dr. He has been an active Certified Member of the Institute for

Advanced Physics since 2018 and Professor of Physics at Clemson since 2008 (recently promoted to Full Professor). We extend our prayers to comfort Ping, his wife.

Jian grew up in China and did his undergraduate work in physics at Jilin University, graduating with a B.S. in 1991. After working for some time at a Chinese national laboratory, he enrolled in the graduate program at the University of Tennessee, Knoxville, where he earned his PhD in 2004. Upon completing post-doctoral research under Dr. Terry Tritt at Clemson, Jian was hired to fill an opening in the faculty at Clemson, following a national search.

At Clemson University, Jian developed a world-class laboratory for synthesis of new crystalline structures and for the measurement of their characteristics, as reflected in his numerous publications in professional journals and in the many graduate students who earned their PhD under his supervision (and many undergraduates who gained valuable laboratory experience). He was also highly prized as a collaborator, as evidenced by his many professional connections around the world. He also served on the scientific review board of *Science Magazine*.

Jian recently became a U.S. citizen and proudly wore his "I voted" sticker following his

participation in his first democratic election.

When Dr. He was studying to become a certified member of the IAP, he told Dr. Murray Daw (his



instructor), *"What you are proposing is revolutionary. We have to do this. We must teach this to everyone."*

At his funeral service, John Denver's song *"Singing Skies and Dancing Waters"*, which Jian discovered from his reading of the book *A Kids Introduction to Physics (and Beyond)* (KIP) (which highlights the song) was played. The song is highlighted in KIP because it explains the importance of the physical world in bringing us to God, to Truth Himself. It was played for both the opening and closing songs. KIP gives the basic physics principles upon which all we know stands; they are needed directly or to reveal by analogy.

Dr. He will be remembered and missed by all his friends at IAP.

Link to funeral home page (video recording of the memorial service is at the bottom)

https://robinsonfuneralhomes.tributes.com/obituary/print_selections/108529012?type=1



Murray Daw has been a Certified Member since 2005 and IAP Adjunct Faculty since 2006. He is the R. A. Bowen Professor of Physics in the Department of Physics and Astronomy at Clemson University in Clemson, SC.

The Institute for Advanced Physics

A Companion to Campbell Biology

by Brian Lane, Associate Member



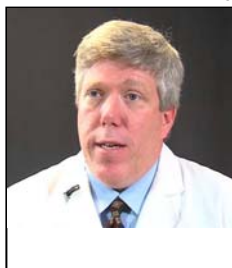
Anthony Rizzi



Fletcher Williams



Kevin Hix



John O'Connell



Brian Lane



Ethan Robson

On September 14, **Dr. Anthony Rizzi**, Director of the Institute for Advanced Physics, led a web meeting of the IAP Biology Group to advance their work developing a supplement (i.e., the *Companion*) to a biology textbook widely used by colleges and universities, *Campbell Biology*. The Biology Group was formed in 2019 and includes **Fletcher Williams**, Assistant Professor of Practice, Associate Members **Kevin Hix**, MD, **John O'Connell**, MD, and **Brian Lane**, and Volunteer Member **Ethan Robson**.

The goal of the *Companion* is to guide students in a proper study of biology, making use of the great empiriological content already in *Campbell*, while correcting serious errors and bringing out important principles that have not been addressed. In the current plan, the companion will only resolve the major points at a generic level. As stated in the IAP Central Theorem (*see page 15*), the study of biology, like all branches of learning, depends on the more general study of physical things, which is called physics. However, the incomplete physics of modern culture does not provide a fully physical understanding of anything, and it therefore gives rise to confusion. Thus, the goal of the *Companion* is to correct the confusion in modern biology by grounding modern biology in the proper first physics.

In the first chapter of the *Companion*, students will learn the generic physics one needs to begin a serious study of biology, with material drawn from Dr. Rizzi's *The Science Before Science*, the *A Kid's Introduction to*

Physics (and Beyond) (KIP) series, and other works. In subsequent chapters, these principles will be applied to the material in *Campbell Biology* to correct the error and confusion of the key points at a generic level. For example, most people cannot answer the simple question: what is the essential difference between a dog and a cat? The profound answer to this simple question (and more) is given in Dr. Rizzi's article, *What is the Difference Between a Lab and a Border Collie?* By integrating materials like these into the *Companion*, students will be equipped to begin exploring the fascinating study of biology starting with the simple things right in front of our face, like dogs and cats.

As the *Companion* is primarily intended for advanced high school and university students, it is hoped that it will increase interest in the study of biology because a natural sense of wonder arises when one truly **understands** reality. The Biology Group is currently focused on developing an outline for the *Companion*, and, during the most recent meeting, Dr. Rizzi led a discussion of principles that will underlie the *Companion*. He pointed out how we should always direct our thinking and our study from generic to specific. In our study of living things, we ought to exhaust all that we can understand at a generic level, unaided by modern scientific tools, *before* we take up those tools and dive into empiriological work. In doing so carefully, we will specify our knowledge properly instead of the confused

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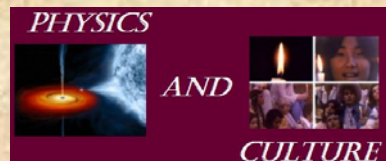
way which is the norm. One pitfall he brought out was the tendency in modern biology to think about things as artifacts, whose nature is defined by us. Because of the primacy of physics, our understanding of physical nature, when we think this way at the level of things like plants and animals, we will of necessity think of rational animals, i.e., us men, as artifacts, i.e., constructs. Dr. Rizzi discusses this artifact type thinking in *Is Your Computer Real?* Thinking of man this way, will lead to treating him as an artifact rather than as a person made to grow in knowing and living the truth and therefore to be loved and cared for.

Due to the mixing up of empiriological constructs with reality (which brings about the failure to ask the fundamental question, "What is it?"), modern biology suffers much confusion. The *Companion to Campbell Biology* will shed light in this darkness and can lead biology students from error to truth.



Brian Lane has been an Associate Member since 2020. He has an M.S. in medical science and a B.A. in philosophy. He worked on projects for the U.S. Centers for Disease Control and is currently an independent consultant.

We invite you to read Dr. Rizzi's articles in IAP's online magazine



including the articles discussed in this issue of *The Institute News*. Articles include

What is America?*Two Types of Empirical People**Is Temperature Real?**What is Science?**Death of Justice?****What is the Difference Between a Lab and a Border Collie?****Physics and "Judge not that you might not be Judged"**Is there in Truth, Beauty?****Is Your Computer Real?****Historic Discovery: Gravity Waves!*

View "gravity wave effect on man" animation

Read articles at:

www.iapweb.org/iapmagazine.htm

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IAP Central Theorem

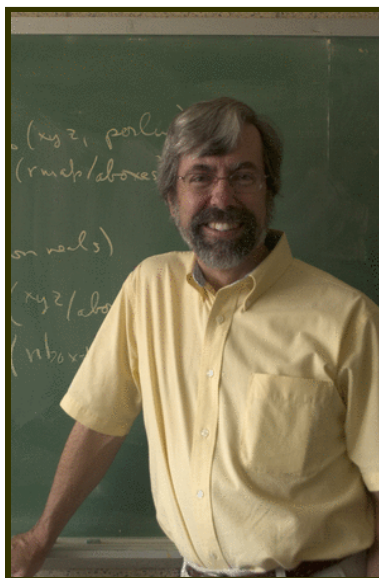
Physics is the Problem and the Solution

- Everything we know comes though what we know through the senses, so physics, the study of the physical world, is the first science.
- Therefore, all other branches of learning depend on this first science.
- Therefore, if our physics is wrong, to that degree, so is everything else!
- The physics of our culture is an equational physics, a physics that deals with symbols and systems of symbols. It is a physics that ends in an equation not in a fully physical understanding. Equations only exist in the mind.
- Therefore our physics is incomplete, being still focused in our minds.
- Now, since all of our cultural thinking builds on what we think of the physical world, our physics, and since our physics is an incomplete symbol physics, all of our thinking is at best unstable and confused and often downright wrong and crazy.

Murray Daw colloquium

“Collapse of the Collapse: Physicists Return to Reality”

Dr. Murray Daw (Dean’s Distinguished Professor of Physics, Clemson University & IAP Certified Member and Faculty) presented his colloquium titled “*Collapse of the Collapse: Physicists Return to Reality*” at a number of universities (**Clemson University, Georgia Tech, University of Georgia, Emory University, and Wake Forest University**)

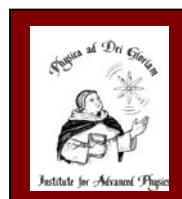


in the Fall, and he has been invited to **Auburn University** and **University of California at Berkeley** this coming Spring. His talk is based on the published work¹ of Dr. Anthony Rizzi (IAP Director) on the proper understanding of Quantum Mechanics (QM). The presentation highlighted recent developments in QM that continue to raise the contradictions inherent in the default interpretation of quantum mechanics (the so-called Copenhagen interpretation is not the only one that assumes this--most do). He also introduced physics audiences to the Ensemble Interpretation which is largely unknown, especially in terms of its most recent development by Dr. Rizzi. Dr. Daw demonstrated in his talk how the Ensemble Interpretation provides the “natural” understanding of QM (to use Einstein’s word) and how it avoids the contradictions inherent in the wavefunction collapse.

Audience response was everywhere energetic – before, during, and after the talk. While most physicists profess not to accept collapse, including the Copenhagen Interpretation, it is clear from the discussions that the wavefunction collapse remains a dominant and persistent part of the thinking of physicists, even for those who disavow it. This latter is illustrated by the effectively universal presentation of wavefunction collapse in quantum mechanical textbooks. Some members of the audiences admitted to not knowing the Ensemble Interpretation, and many were induced to read Dr. Rizzi’s papers on the subject. At least one audience member in each venue asked about how Rizzi’s work relates to the decoherence; many have the idea that decoherence solves the measurement problem that collapse is meant to solve; it does not.

Many physicists support the many worlds view of quantum mechanics, whereby every change is supposed to be accompanied by the creation of an infinite number of universes. The many worlds view is a natural outgrowth of taking the empiriometric theory seriously, indeed seriously beyond its actual natural meaning, which is simply explained in Dr. Rizzi’s article *A Simple Approach to Measurement*.¹

¹ A. Rizzi, “A Simple Approach to Measurement in Quantum Mechanics”, *arXiv: 2003:03413* (2020). A. Rizzi, “How the Natural Interpretation of QM Avoids the Recent No-Go Theorem”, *Foundations of Physics*, v50 p204 (2020). A. Rizzi, *Physics for Realists: Quantum Mechanics* (IAP Press, 2018).



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www.iapweb.org/membership.htm

James Stoner Gives Featured Lecture at Christendom College

by Fletcher Williams, Assistant Professor of Practice

On November 15, 2021, IAP's **Dr. James Stoner** gave a lecture at **Christendom College** titled "Can Religion Be Legislated?" He was invited as a featured speaker for the **Tocqueville Forum on Liberal Democracy**, and he spoke with the public as well as with private groups of professors and students at the college.



James Stoner, PhD, Harvard University, has taught at LSU since 1988, chaired the Department of Political Science from 2007 to 2013, and served as Acting Dean of the Honors College in fall 2010. He was a member of the National Council on the Humanities from 2002 to 2006. In 2002-03 he was a visiting fellow in the James Madison Program in American Ideals and Institutions at Princeton University, where he returned in the 2013-14 academic year as Garwood Visiting Professor in the fall and Visiting Fellow in the spring.

In his talk, he pointed out how the political and religious strife we experience today has its roots in the equation-alone physics that has come to dominate the thinking of our culture. He explained that modern science, while good, because of its lack of grounding in the things we know through the senses, leads us to even doubt reality. He knows the Institute for Advanced Physics is the one place that is working on and succeeding in fully understanding physics in a complete and grounded way, and he tried to convey that to his audience. He pointed out a high level fruit of IAP's work, which grows out of its foundational physics work, **Dr. Anthony Rizzi's** article *What is America?* and the insights it provides into the principles understood by the Founding Fathers that were fundamental to the founding of our country.

As evidenced by Dr. Stoner's talk, as well as many other ways that IAP affiliates are engaging students and professors, people are hungry to discuss the fundamental truths being uniquely made available by the work of IAP.

Read *What is America?* by Dr. Anthony Rizzi in IAP's *Physics and Culture* magazine <https://www.iapweb.org/iapmagazine.htm>
In order to help IAP do the research and education that leads to the understanding and writing of these articles, we ask for a donation of \$2 per article that you read or download.

As Dr. Anthony Rizzi says, it is only because **Aristotle** had figured out the basic physics that he could say with true understanding,

Therefore in the household first we have the sources and springs of friendship, of political organization, and of justice.

1242a40-1242b1 Eudemian Ethics, Aristotle

I am writing to express my complete and enthusiastic support for the work of the Institute for Advanced Physics. The people involved are knowledgeable and even exceptional in their fields.... I can testify that the Institute's work is crucial to reforming our culture. Misunderstanding of science is the key source of the confusion in the humanities and the larger culture. Physics in the broad sense is the foundation for all of our knowing.

Ralph McInerney

Member of the President's committee for the Arts and Humanities,
Gifford Lecturer, Professor of Philosophy,
University of Notre Dame,
Institute for Advanced Physics board member

DiCarlo heads up IAP education outreach projects



Associate Member and IAP Membership Director **Anthony DiCarlo** has been heading up a couple important education outreach projects for the Institute for Advanced Physics (IAP) this fall.

One is a study group based on *The Science Before Science* (SBS) by Dr. Anthony Rizzi, physicist and Director of IAP. Mr. DiCarlo was assisted in this project by IAP Associate Members **Frank Camacho** (*photo below left*) and **Maikel Garcia** (*photo below right*), as well as Volunteer Member **Michael Rutland** (*photo red tie*).



The group, which started meeting in April and concluded this fall, met every other week via Skype to share insights, ask questions, and review the essential material contained in SBS. The group members expressed excitement about the material and gratitude for the opportunity to be part of the study group.

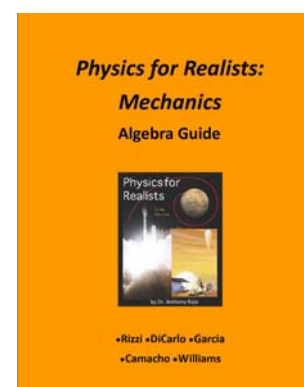
Study groups like this one are happening all over the country; they are lots of fun and provide a healthy community in which participants can begin learning the fundamental

physics and integrating those truths into their lives. Be on the lookout for future study group opportunities! Email info@iapweb.org for more information and to stay connected!



The second education outreach project that Mr. DiCarlo is heading up is a high school physics course based on the *Physics for Realists: Mechanics* (PFR:M) textbook by Dr. Rizzi. Mr. DiCarlo is assisted in this project by IAP Certified Member **Dr. Dan Lejeune** (*photo above*) and Associate Member **Maikel Garcia**.

The year-long course, which is being offered remotely via Zoom, makes use of a draft of the *Algebra Guide*, which makes the content of PFR:M (which is calculus-based) accessible to algebra-level students. Feedback from the course will be used to further refine the *Algebra Guide*, which is scheduled to be



finalized in the near future. Once completed, this resource is going to make fundamental curriculum changes possible in high schools around the country by enabling them to offer physics during the freshman year of high school at an algebra-level. Students can then return to physics during their senior year of high school, taking it this time with the full calculus treatment. Be on the lookout for this important resource!

Michael Rutland, New Volunteer Member

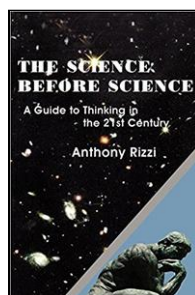
Michael Rutland first learned about the Institute for Advanced Physics' (IAP) material in his high school physics class taught by Associate Member **Anthony DiCarlo**. The course was based on the *Physics for Realists: Mechanics* textbook written by Dr. Anthony Rizzi. Michael loved it and excelled in the class as a result of the common-sense starting point that it provides. Michael says, "I still remember my very first homework assignment from Mr. DiCarlo for *Physics for Realists: Mechanics*. After reading the first couple of pages of that life-changing book, I was dumb-founded. It gave me my very first taste of what every man should have: real knowledge! Not merely belief, but the ability to know things in a clear and principled way." He wanted to learn more, so he bought and studied more of Dr. Rizzi's books, *A Kids Introduction to Physics (and Beyond)* and *The Science Before Science (SBS)*, during the summer following his senior year under the guidance of Mr. DiCarlo.



physics. He enrolled at Clemson University where he was able to take *Physics for Realists: Electricity & Magnetism* and is currently taking *Physics for Realists: Quantum Mechanics*, both taught by IAP's faculty **Dr. Murray Daw**. Michael hopes to one day earn a Ph.D. in physics!

Michael has been involved in a variety of IAP projects including tutoring, assisting with SBS study groups, assisting with Standard Model equation type-setting, and leading IAP article discussion groups at his parish. Michael is currently coordinating and leading the Clemson University chapter of the Faith, Science, and Reason Study Group based on *The Science Before Science*. He is so thankful

for all that he has learned through IAP and is looking forward to a lifetime of growth in truth as a member of the IAP community!



The Science Before Science: A Guide to Thinking in the 21st Century by Dr. Anthony Rizzi is available in paperback on Amazon and [audio](#) on the IAP website

Because of his new-found love for physics, Michael decided to pursue a college degree in

Volunteer Member **Kateri Rizzi** received the nationally recognized Daisy Award for extraordinary compassionate care in her clinical work as a junior nursing student at LSU School of Nursing in New Orleans. On December 6, 2021, Kateri was one of four students chosen out of the 20 nominees taken from the nursing school (1,000₍₁₎ enrollment).

(1) www.lsuhsoc.edu/newsroom/Fast%20Facts.html



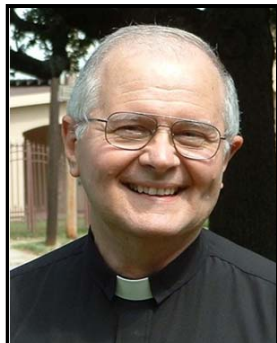
Inspired by Mother Teresa, Kateri seeks *to do small things with great love.*

Congratulations Kateri from your IAP community!



**FOR EXTRAORDINARY NURSES
IN MEMORY OF J. PATRICK BARNES**

Fr. Cliff Hill, Ph.D., donates physics books to IAP



Fr. J. Clifton Hill, C.S.Sp., Certified Member of the Institute for Advanced Physics (IAP), was transferred in November from Baton Rouge, Louisiana to his community's retirement home in the

Pittsburgh metropolitan area. This was the catalyst which moved Fr. Hill to donate over 80 physics books from his personal library to the Institute for Advanced Physics library. The IAP is grateful for this donation of books which is a great asset to our faculty, members, and students.

Fr. Hill has been a Certified Member of IAP since 2007. He graduated from Louisiana State University in May of 1958 (B.S., Physics) and entered the Spiritan Novitiate (Holy Ghost Fathers) in August. He was encouraged to pursue his study of physics even while in the seminary and obtained a M.S. in Physics from Catholic University in 1963. After ordination, he attended Rice University, obtaining his Ph.D. (Atomic Physics) in 1971. He spent the next thirty years teaching physics at Duquesne University in Pittsburgh, PA. He has been in Baton Rouge from 2003 until now.

Though educated before Vatican II in Thomism, he, like nearly all others in our culture, found himself with no real digestion of basic concepts such as substance, accident and the deep, but common sense, Thomist understanding of change. Indeed, little of basic Thomism made any sense to him before

going through the IAP certification process. At that time, he pointed out that he was able to see it because Dr. Rizzi brought in physics, helping him see how modern physics presupposes and illuminates the basic physics that St. Thomas understood and discussed. He was able to see how IAP's work helped him understand physics for the first time as well as deepen his physics knowledge.

The Joy of Teaching IAP Physics



Dr. Rama Podila, IAP Certified Member and Clemson University Associate Professor, turned down a job offer in his home country of India because he did not want to leave his teaching and research at Clemson University using the resources and knowledge gained through the Institute for Advanced Physics. He gets up excited everyday about teaching the IAP material in his classes at Clemson University, and he enjoys working with Clemson faculty and students as well as his colleagues in the IAP.

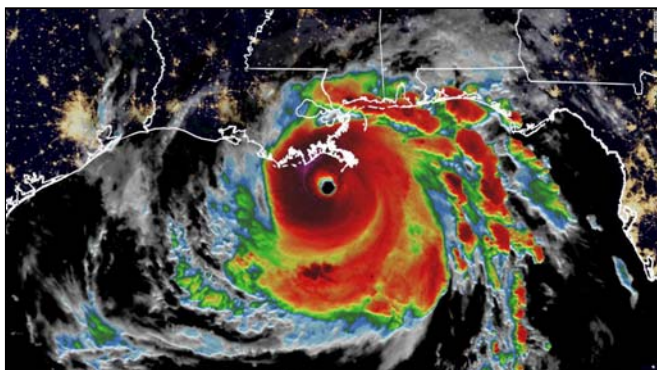


Looking for a home for your physics books collection?

Please contact the Institute for Advanced Physics at 225-667-0233.

Please consider including in your will the specific gift of your book collection to IAP.

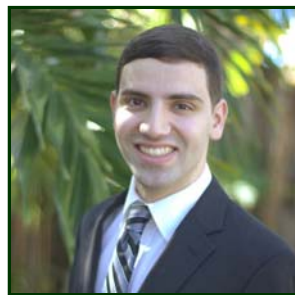
Hurricane Ida makes landfall in Louisiana



Hurricane Ida made landfall in the greater New Orleans area on September 29, 2021 as a category 4 hurricane. It is the second most damaging and intense hurricane to hit Louisiana. The eye of the storm passed basically over the top of the IAP's office. However, IAP escaped a direct hit because, due to the highly asymmetric form of the storm, its activity was not at the center. It was scheduled to be much worse, but that was changed in an eleventh-hour shift in the path of the storm. The office suffered power outages, loss of phone service, as well as internet loss for a bit short of a week. Days before Ida hit, associates were working on precautionary measures for wind damage as well as serious preparation for potential flooding. Despite winds of around 60 mph, the office received only minimal exterior damage to its shutters. And because the IAP was on the west side of the eye, we were blessed with significantly less rain than expected.

Fortunately, the office was supplied by generator power during the storm, enabling some work to continue. However not having internet and phone crudely cut off important communications and blocked essential work from being accomplished. Gas was also not available and many stores were closed. The IAP associates invested numerous hours to set up hotspots with little success for the first couple days because of technical difficulties. As well as creating much tension for everyone concerned, the impact of the storm also shut down the IAP store during this time as well as delaying shipments for weeks.

Musical reflections on the true meaning of Christmas



On December 19th, 2021 at St. Mark Catholic Church in Southwest Ranches, Florida, IAP Associate Member and accomplished pianist

Anthony Coniglio gave a presentation entitled "Musical Reflections on the True Meaning of Christmas". In this event, Anthony offered a brief meditation on several well-known Christmas hymns, sharing important insights, especially regarding the centrality of truth in Christ's mission. Following each meditation, Anthony played the Christmas hymn on the piano for all to enjoy. The hymns he covered included *Away in a Manger*, *O Holy Night*, *Hark! The Herald Angels Sing*, and *O Come All Ye Faithful*. The event concluded with a grand finale of *Joy to the World*, which participants were encouraged to sing along with. At the end of the event, Anthony credited the Institute for Advanced Physics as the fundamental source of many of the truths he shared. What a wonderful way to help prepare for the celebration of Christmas!



We are happy to announce that IAP's Mars Calendar has been awarded the 100% clean badge by Software Informer! December 2021

Visit the Mars Calendar at <https://www.iapweb.org/MartianCalendar/>

What is America?

by Anthony Rizzi

As you know, IAP is tackling the core of our deep cultural problems, which is our science not being clearly grounded in the principles that every child knows. IAP is repairing the core of our culture by grounding its core thinking, modern science, in our knowledge of the physical things that we know directly through our senses. To give people insight into this deep need (which is currently only addressed by IAP), Dr. Rizzi here addresses the topic of "What is America?".

What to make of the United States of America? It is said to be a very young country even though, it is, by far, the oldest country in the world,² having the same government for nearly 250 years. It is said that her founders were Deists governed by secularist, enlightenment thinking. America is somehow also puritanical and "merely" protestant. She is alleged to be individualistic and often *defined* as capitalistic, even though the latter is an economic system not a form of government.³ I fear most Americans do not truly understand the nature of our country because most don't understand its core principles let alone the source of those principles. Indeed, few have the foundational principles that we get through our senses in the developed habitual way needed to understand. Lacking facility with these core principles means we profoundly misunderstand our laws and the nature of the choices involved in choosing our leaders.

America and Scientism

It is important to understand America, our home. We will, in a moment, embark on an exploration of the nature of America, but as we

² Defining a country essentially by its government, rather than by secondary qualities such as its ethnic population or geographical boundaries.

³ This reveals the scientized tendency (not shared by the founders of the US) to view life as simply economic, simply a system of exchanging symbols (note money is simply a symbol of value, not the value itself). To the empiriological mind, the economy as such suggests the promise of a human life governed by equational predictions, being describable at some level "automatically" by numbers that can be encapsulated into a symbolic structure. Indeed, today, physicists are sought for their mathematical ability to analyze stock markets and the like.

discover that nature, we will then be drawn to ask: what has happened to that America? Why don't I see this America much?

We will see that America's core has been under disruption almost from its creation, by the very "enlightenment" ideas that people think form its nature. These false principles are in fact unenlightened, indeed anti-rational and ultimately arise from our faulty approach to and understanding of the physical world.⁴ This problem is associated with a great, hard to overvalue, positive event in about 1600, the discovery of the scientific method, without which man could not break beyond a very generic understanding of the world.

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<http://www.iapweb.org/iapmagazine.htm>

To support IAP's research that leads to the understanding and writing of these articles, ***we ask for a donation of \$2 per article that you read or download.*** There are more articles at iapweb.org/iapmagazine.htm



Anthony Rizzi, Ph.D., founder and Director of The Institute for Advanced Physics (a 17-year-old non-profit organization), gained worldwide recognition in theoretical physics by solving an 80-year old

⁴ See *The Science before Science: Reintegration of the Modern Mind and its Science*, A. Rizzi, October 2006 plenary talk at the American Maritain Conference, Published: *Reading the Cosmos: Nature, Science and Wisdom*, American Maritain Association Publication (2011) ("Reintegration"). See also A. Rizzi, *A Kid's Introduction to Physics (and Beyond)*, IAPpress, Baton Rouge, 2012 (KIP), *The Science Before Science: A Guide to Thinking in the 21st Century*, IAPpress, Baton Rouge, 2004 (SBS), Also, see: "What is Science?", "What is the One Ring that Rules them all?", "Is Temperature Real?", and "Is Your Computer Real?", *Physics and Culture* (Feb 2019, Nov 2019, Sept 2019, Aug 2014); see iapweb.org.

problem in Einstein's theory. He has physics degrees from MIT and Princeton University. Prior to IAP, he was senior scientist at Cal-Tech's Louisiana LIGO and taught at LSU. LIGO won the Nobel Prize in physics 2017. In addition to professional publications, he is author of the Physics for Realists textbook series, The Science Before Science, and A Kid's Introduction to Physics (and Beyond) Vols. I & II.