

THE INSTITUTE FOR ADVANCED PHYSICS

The Institute News

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Eighteenth Annual IAP Members Conference

by Ken Klenk, Ph.D., IAP Certified Member

photos courtesy of Maikel Garcia, Ken Klenk, Frank Camacho, Dan Welch, and Murray Daw



(left to right)(top row) Anthony Coniglio, Frank Camacho, Dr. Kevin Hix, Dr. Anthony Rizzi, Dr. Stephen Strickland, (2nd row) David Giroir, Anthony DiCarlo, Randy Nichols, Giuseppe Rizzi, Dr. John O'Connell, (3rd row) Dr. Dan Lejeune, Maikel Garcia, Brian Lane, Dr. Murray Daw, Dr. Dan Welch, (4th row) Dr. Ken Klenk, Dr. Goncalo Dias, [Clemson Group: Dr. Murray Daw, Fletcher Williams and Anthony DiCarlo], Fr. Neal Nichols, Dr. David Welch, (5th row) Gerardo Vazquez, Fletcher Williams, Ronald Heisser, Dr. Jian He, and James Louviere (not pictured)

Annual conference story continued from page 1...



(Starting on top, left to right) Randy Nichols, Maikel Garcia, Murray Daw, Stephen Strickland, Anthony Rizzi, Giuseppe Rizzi, Fletcher Williams, Anthony DiCarlo, Frank Camacho, and Dan Welch

IAP's 18th annual summer conference, *Physics for Realists XVII: Quantum Field Theory II*, was held on July 22-25, 2020. The conference was held via Zoom this year because of the precautions taken to prevent the spread of the COVID-19 virus. Every effort was made to replicate the in-person meetings of the annual conference. Meals were taken together; all of us having the same meal, e.g. subs, pizza and fish. There were discussions between participants using various Zoom 'tables' that were assigned and the walks that participants would take between sessions were also replicated using cell-phone communications. Everyone had a special IAP Conference 2020 mug to use during meals which also took place at "tables." Details on how to dress and set one's local environment were provided to all so as to have a more real conference feel. The effectiveness of the conference logistics for the exchange of ideas among participants was excellent.

The conference began on Wednesday with a primer session led by IAP faculty member, **Prof. Murray Daw**. This was 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. These principles are



the basis for our culture (generically and up to that level of specification).



Thursday morning began with a discussion led by **Dr. Anthony Rizzi**, IAP founder and Director, about 'physics with a common sense grounding.' It is important to know the principles and foundations of physics to be able to understand all that comes after, he said, especially the empiriometric theories of modern physics. We have proper knowledge of those everyday things around us and we must build on this in order to further specialize our knowledge of those things through modern empiriometric science. Furthermore, Dr. Rizzi points out an effectively unknown, but essentially important, implication of the principle used by Jesus in saying: "Anyone who says, 'I love God', and hates his brother, is a liar, since a man who does not love the brother that he can see cannot love God, whom he has never seen." One cannot claim to know God without knowing the physical world through which we know Him. An equation-alone-based-thinking leads to a reign of scientism which creates a culture with a heart of stone that is insensitive to reality, including our fellowman. We must get the physics right to get our culture right.

Taking up quantum field theory (QFT) related topics, **Dr. Rizzi** discussed the important physical meaning of the Lagrangian. He discussed the work function, virtual displacement, the physical condition of equilibrium, D'Alembert principle, Hamilton's Principle of Least Action, and generalized coordinates were covered. Of course, his explanations were new, as his explanations were fully physical, not solely empiriometric as standard ones are. He next discussed the deep analogically general relation between the Hamilton Principle and Huygens's Principle.

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Annual conference story continued from page 2...



Mr. Giuseppe Rizzi, a May 2020 Texas A&M electrical engineering graduate, discussed “How Physics Effects the Lives of Young People.”

And, before breaking for lunch, **Dr. Rizzi** presented **Dr. Goncalo Diaz**, a physicist and researcher at the University of Lisbon in Portugal, with his certificate of Certified Membership. In addition, he presented Associate Membership Certificates to **Giuseppe Rizzi**, a recent graduate of Texas A&M with a degree in Electrical Engineering, **Brian Lane**, a Quality Assurance and Safety Consultant working at the Center for Disease Control, and **Anthony Coniglio**, a recent graduate of Indiana University in Bloomington where he majored in physics, mathematics, astronomy/astrophysics, and music (four majors!). See new member photos on page 6.

Two members were promoted. Associate Member **Anthony DiCarlo** was appointed the IAP **Membership Director** “in recognition of 9 years of outstanding growth in, enthusiasm for, and commitment to the essential work of integrating and reestablishing the foundational physics.” Associate Member **Fletcher Williams** was appointed **Assistant Professor of Practice** in recognition of the physics knowledge and teaching ability he has gained as a member. See photos on page 6.

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



connection to the Schrödinger equation. After that **Fletcher Williams** discussed “Measurement in QM as Revealed in PFR-QM.” 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. He also discussed the Aharonov-Bohm effect, which helps reveal this deep connection. And, he discussed the relation of Fourier analysis to QM.

Also during the afternoon, various groups broke out at various times to discuss problems for the QFT textbook, discuss KIP II, and address how QFT and quantum mechanics generally impact the popular mind, especially using a Joe Rogan interview of Sean Carroll.

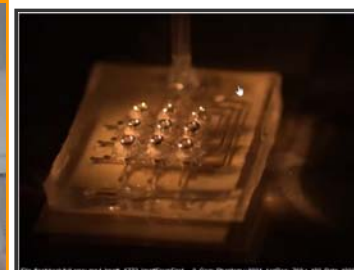
Gerardo Vasquez, a seminarian with the Archdiocese of San Francisco who has a BS in Aerospace Engineering and 12 years experience in



the aerospace industry, discussed the work that he is doing under the leadership of **Dr. Anthony Rizzi**. The group, which includes **Fr. Nichols** and several other members of the Institute, is creating sermons for the liturgical year that are, for the first time in modern times, firmly and *explicitly* grounded in the physical world. Four complete sermons have been created thus far with ample notes and references provided for use for further development. Vasquez has been asked by **Archbishop Salvatore Cordileone** of the Archdiocese of San Francisco to participate in this work. Before dinner, **Fletcher Williams** gave an update on the IAP University work.

On Thursday evening, Associate Member **Ronald Heisser** (*photo below*), a Ph.D. engineering student at Cornell University, gave a presentation of his work with muscle-like actuators.

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Annual conference story continued from page 3...



Certified Members **Dr. Dan Welch** and **Dr. Dan Lejeune** conducted several very interesting and informative experiments for the participants to discuss involving magnetism. They designed and set them up specially in their lab for the conference.



This was followed by a discussion of the American incarnation of Western (Christian) tradition. That tradition includes the principles of the nature of man and the world upon which any full culture must build (which are deducible through what we get through the senses). In this light, the importance of the Magna Carta in the history of government and the innate dignity of man that even the king could not violate were discussed. The American government, like anything truly human, is incompatible with an empiriometric-alone culture. The Constitution is a natural law document and not a software program. There was much interesting discussion.

Friday sessions continued by discussing the tentative table of contents for the *Quantum Field Theory* text book by **Dr. Rizzi**. It is firming up and very close to final. The text will potentially include a chapter on gravity with a discussion of the Wheeler/Hawking wave function for the universe and end with a chapter on Grand Unified Theories and Theories of Everything including String Theory and the de Broglie Bohm/Valentini Theory.

Next, **Anthony DiCarlo** discussed “Living What You’ve Learned, Step 3ing IAP”.



Dr. Rizzi discussed how the world is devolving into a Brave New World where we see the abolition of the physical.

To illustrate this descent, Dr. Rizzi discussed problems in our culture that have resulted from the thinking that ultimately arises from equation-alone physics. He went on to show how this problem has been developing since the time of the modern scientific revolution, making the *need* for the work of the Institute *urgent* at this point.



Associate Member **Frank Camacho** provided a walk-through of the *Kid’s Introduction to Physics and Beyond, Volume II (KIPII)*. The KIPII answers the question of how and

why a baseball flies from your hand when you throw it. The KIP II, building on KIP I, introduces kids to more mechanics, to E&M, and to QM at a very simple level. Starting with the natural wonder kids have about the things around them and building upon their common sense, KIP II brings out the core of these foundational subjects in a simple, clear way that reveals their intrinsic value and interest.

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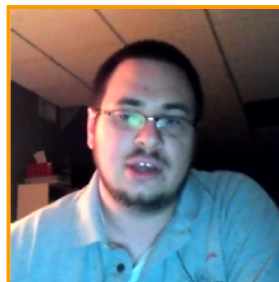
Annual conference story continued from page 4...

On Friday afternoon, members were treated to a video: *Return to Wisdom*. Also, a breakout group led by **Fletcher Williams** worked on various topics for an IAP companion book for the Campbell Biology text. This companion would be a resource for students taking biology courses



and give them a grounding in the Institute's work. Another breakout group led by **Anthony DiCarlo** discussed the development of an

oath and virtues for the Institute members to focus their intellectual development through the four steps of learning. The main group participated in talks on QFT. Because of all the important and deep discussions on the QFT and other topics, members agreed to delay two QFT items till after the conference. **Dr. Daw** presented a talk entitled "A Deeper Review of the Standard Model." **Anthony DiCarlo** gave a talk on bringing IAP's mission more into social media. Certified



Member **Dr. Stephen Strickland** (photo left) gave an update on his work with the Hydrodynamic-Quantum analogy. Associate Member **Frank Camacho** provided a

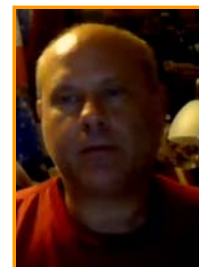
review of the Manned Space Missions, in keeping with our Manned Mars practical theme.



After dinner, Certified Member **Dr. Ken Klenk** updated his work on the quantum mechanical mechanisms believed to be responsible for the migration capabilities of

birds using the earth's magnetic field. **Dr. Strickland** provided an update of his work with quantum computing. Throughout the conference there was an ongoing "Grab that Word" tournament. Using the app available on

the IAP store, members challenged each other's ability to explain IAP words. Friday night included the match up of the tournament finalists. The winner was the team composed of members: **Giuseppe Rizzi** and **David Giroir** (photo right).



On Saturday morning, the members had a general discussion on issues of concern to the Institute. The group discussed in more detail the ideas behind what the Institute calls the American incarnation and **Dr. Rizzi** brought up many interesting facts associated with that thought and the dangers posed by scientism and the use of words to create mental constructs without having the proper understanding of physics and the world which comes first. "We need to apply the same method we used to understand the basics of physics analogously to understanding other problems: asking, analogically, what is the substance and what are its accidents, what are its proper and mere accidents, what are its privations and how do we work from the general to the specific."



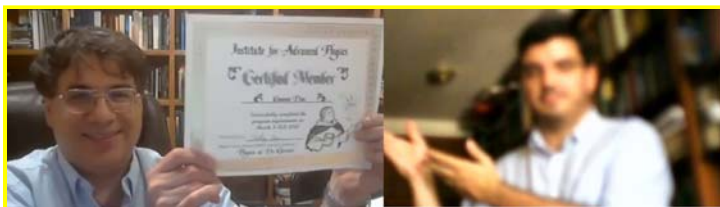
Fr. Neal Nichols, FSSP, IAP Spiritual Director, provided on-line Mass each day and led the participants in prayer before and after conference sessions and meals. The members of the

Institute are deeply indebted to Father for his guidance and prayerful protection. *Continued on pages 6 and 7*



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.

New members receive their certificates via Zoom presentation by Dr. Rizzi



Dr. Rizzi left with Certified Member **Dr. Goncalo Diaz**
(Dr. Diaz participated from Portugal)



Associate Member **Anthony Coniglio**



Associate Member **Brian Lane**



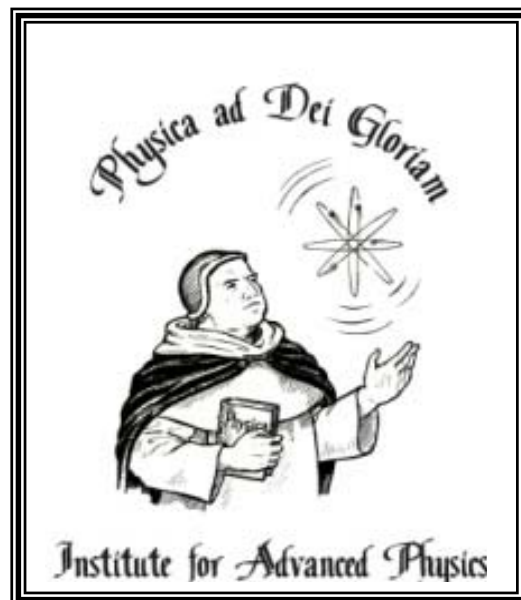
Associate Member **Giuseppe Rizzi**



Anthony DiCarlo right appointed Membership Director

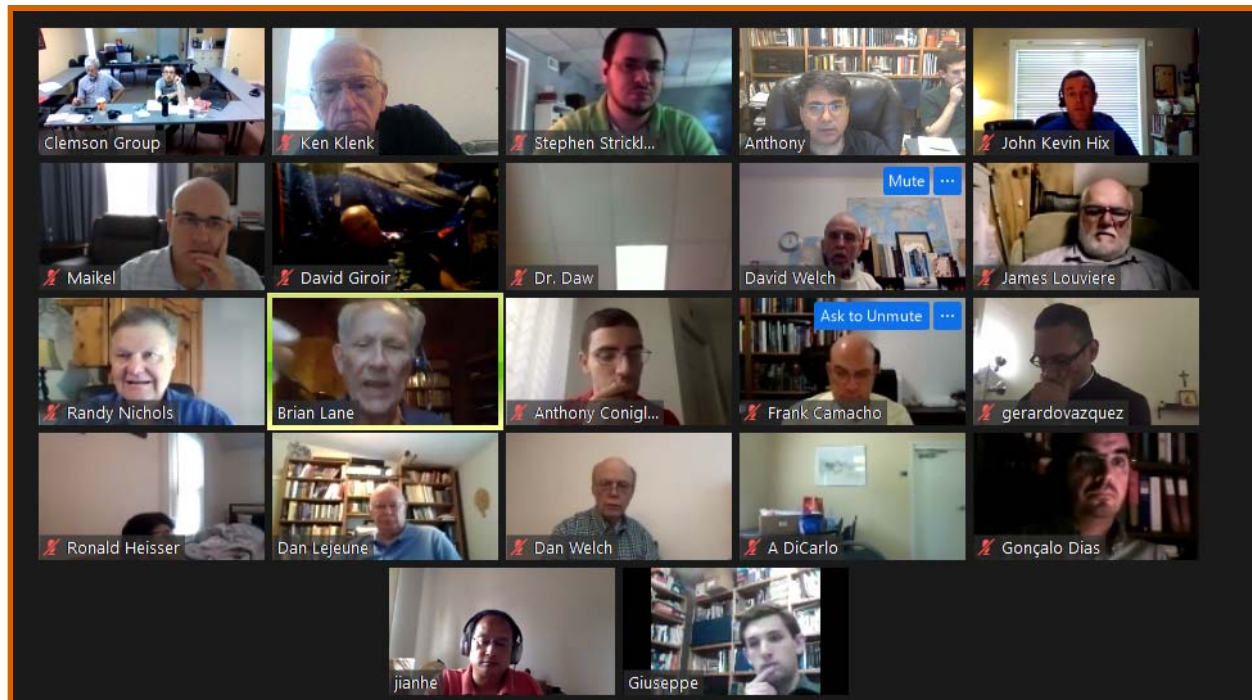


Fletcher Williams right appointed Assistant Professor of Practice





IAP 2020 Conference Mugs



Thank you
to all of you who support the IAP with monthly contributions.

**IAP extends a special thank you to
 Texas Instruments Foundation
 Cribb Giving Fund**

**We also extend a most heartfelt thank you to the families who asked that
 donations be made in memory of their loved ones this year.**

**In memoriam:
 Mrs. Joan Pachota
 Dr. Dan Welch
 Dr. Tony Rizzi, Sr.**

We are very grateful for your financial support.

The Institute for Advanced Physics is recognized by the IRS as a 501(c)3 non-profit organization. Your donations are tax deductible. Please remember us in your Will, Trust, or other planned gifts. For more information, please contact us at 225-667-0233.

Remembering Dr. Dan Welch

September 7, 1949 ~ November 6, 2020
IAP Certified Member



It is with deep sorrow that we announce the loss of our friend and colleague **Dan Welch**. He has been an active Certified Member of the Institute for Advanced Physics since 2008 and Professor of Physics at Wofford College in Spartanburg, SC since 1978. We extend our prayers to comfort Shannon, his wife, and three children and seven grandchildren.

Dan did his undergraduate work in physics at the University of Louisiana at Lafayette and earned his Ph.D. at Clemson University in South Carolina, specializing in gravitational radiation according to general relativity.

While in the academic community, for 9 years he maintained a consulting business that produced hardware and software for industrial control systems. This resulted in a dual appointment, both to the physics department and to the computer science department at Wofford College. As part

of his physics education outreach, he worked at planetariums as program writer and performer and has worked with gifted students and middle school teachers in astronomy. When he joined the IAP, he was chairman of the Wofford physics department.

As in previous years, this past July Dan Welch and IAP Certified Member Dan Lejeune conducted experiments for IAP members at the annual IAP summer conference. Dan was very committed to the work of the IAP and supporting its members.

Eternal rest grant unto your servant, Dan, O Lord, and let perpetual light shine upon him. May his soul and the souls of all the faithful departed, through the mercy of God, rest in peace. Amen. We ask for Dan's intercession for the Institute for Advanced Physics.



While working in physics a small voice sometimes urges deeper attention, an idea that seems, somehow, too valuable to dismiss. Lacking time, I shelve the idea in that place of hope reserved for such moments. Occasionally I will pull an idea from the shelves, follow it, make some progress, then put it back on its shelf for more attention later. Few get that final touch that removes them permanently; the shelves fill faster than they empty. One never expects to answer all questions, of course, but the filling begins to feel disquietingly systematic, a sense that I am missing something fundamental.

During the IAP Summer Conference this summer, the very physical view produced a clarity that deeply startled me. I know that I have been making progress with the philosophical basis, but this was an abrupt step upward. It was a direct experience of the deep beauty of physics that drives both research and teaching. During those moments this summer, important things were pulled from my mental shelves and placed directly into my mainstream. The rare experience multiplied!

The work of the Institute has become essential to my own life's work. Working in company with good men who are also good physicists exceeds in fullness anything I have experienced before. This is what Physics should be, must be.

Reflection written by **Prof. Daniel Welch** on September 8, 2010

IAP Organizes Zoom Masses in the midst of COVID-19 Crisis

by Frank Camacho, Associate Member

In response to the cancellation of public Masses across the United States at the onset of the coronavirus pandemic in March 2020, the IAP stepped into the breach created by this crisis with a unique approach to recover what we could of the lost Sunday Mass. A committee of IAP led by Dr. Rizzi organized Sunday Masses over the internet with the use of the Zoom app. The IAP invited everyone in the parishes of St. Agnes Catholic Church of Baton Rouge, Louisiana (the parish of the central offices of the IAP) and St. Benedict's Parish of Chesapeake, Virginia (the parish of Fr. Neal Nichols, FSSP, IAP Chaplain), along with members of the IAP across the country and world, to assist at Masses offered in the traditional form (the Mass of the ages) by Fr. Nichols at St. Benedict's, with everyone coming together over the internet through the use of Zoom.

The first of these Zoom Masses at *St. Agnes and St. Benedict in extension* took place on Sunday, March 29, 2020, approximately two weeks after communities in the U.S. went into government-ordered "lockdowns" and large public gatherings such as indoor religious services were prohibited to combat the spread of the coronavirus. The Zoom Masses were held every Sunday morning until May 10, 2020, around the time when many dioceses began offering public Masses again, albeit with restrictions on how many parishioners could attend and mandatory mask requirements. This period, which began during the season of Lent, also included Masses for Palm Sunday and Easter Sunday, and ended with Mass for the Fifth Sunday of Easter.

After each Mass, parishioners and IAP members continued their fellowship by listening to a brief COVID-19 update given by Dr. Anthony Rizzi, IAP Director, followed by questions for Dr. Rizzi and then community discussion on various topics of interest. Our

gatherings were then concluded by a prayer and a blessing by Fr. Nichols.

To explain to people the nature of participation at Mass virtually and man's *natural* obligation to give thanks and praise to God, Dr. Rizzi sent out a document deeply grounded in the fully physical understanding that IAP is restoring and people (outside IAP) are not even aware is missing. I cover some of the content below.

During the lockdown period when most people could not attend Mass in person physically (the full and proper way of assisting at Mass), many parishes made available broadcasts of the Sunday Masses offered by their pastors via television or by streaming video over the internet, which people could watch privately in their homes. While this may be the best that many individuals and families could do during these trying times, it does not respect fully the intrinsically communal aspect of our human nature, as it still lacked the vital ingredient of having people participate in the Mass in communion with other members of the faithful in the Body of Christ, which is the Church. As the COVID-19 crisis left Catholics without their usual parish homes and the opportunity to attend Sunday Mass, we risked losing those habits of regular worship, especially *as a community*, and the maintenance and growth these habits provide to our spiritual lives. An important goal of these Zoom Masses, therefore, was to maintain, at least at some level, the habit of regular, communal Sunday worship by offering parishioners at St. Agnes and St. Benedict's, along with IAP members elsewhere, the opportunity to assist at Mass at a scheduled time in the presence of a larger community (not just as an isolated family at home by itself), so that we were all worshipping together at the same time and enjoying fellowship afterward in each other's presence.

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IAP Organizes Zoom Masses continued from page 9

This mode of participation is quite different from merely “watching” the Mass on television or over the internet privately at home.

Considering the fact that our formed habits of watching television or streamed programming are not at all aligned with the transcendental nature of the Mass, it was important for parishioners and IAP members assisting at these Masses to form good habits for participation. After all, television is generally a form of entertainment for us, not the standard medium for communal worship, let alone a standard medium for attending Mass as a community. To further the goal of participating in the Zoom Masses in a more complete fashion as a community, the families were encouraged to use the correct postures and gestures during Mass (e.g., standing, sitting, kneeling, genuflecting, making the sign of the cross, when appropriate) and to recite an Act of Spiritual Communion as a family in lieu of actually receiving the Eucharist. Furthermore, everyone was asked to dress in proper Mass attire and to assist by gathering in the same room as a family, with cell phones and other electronic devices turned off to prevent interruptions or distractions during worship. Children who participated were instructed about the solemnity of the occasion and that their best behavior and being quiet was needed and expected.

The Zoom Masses organized by the IAP were very well received, and those who took part in them expressed much gratitude to the IAP for the opportunity IAP gave them to gather as a community for regular Sunday worship during an unprecedented time in our history, when our entire country and most of the world was forced into some level of social isolation as a result of the coronavirus pandemic. Participation in these Zoom masses and in the fellowship that followed helped those involved to feel that they were part of a community undergoing a shared experience,

to be reminded of their obligation to each other and to God, and, as best as could be done in a limited time and under the circumstances of the pandemic, to partake in and be thankful for all that God has given us in the Holy Sacrifice of the Mass.

The IAP’s creative response during this crisis made it possible for us to respect our natural law duty to offer thanks and praise to God and to follow the Divine positive commandment to keep the Sabbath by assisting at Mass, the most proper form of praise and thanksgiving that is due the Creator, in a manner that was as close to “in person” as possible.

The high state of our scientific knowledge, which gave rise to the uniqueness of the situation, also brought us the solution, our technology (in the form of the internet and apps such as Zoom), which is the fruit of science. We are thankful for the opportunity that this technology and the IAP’s initiative gave us to learn and grow in ways that we otherwise wouldn’t have been able to during the COVID-19 crisis.



Frank Camacho has been an Associate Member, Level II, since 2014. He has an M.S. in electrical engineering from MIT and works at Sandia National Laboratories.

Divinitas

a journal published by
Pontifical Academy of Theology
Vatican City, Rome

in September 2020 accepted
Dr. Rizzi’s article

***Does Grace Help You
Think Better?***

Anticipated publication in
December 2020

Dr. John O'Connell, New Associate Member



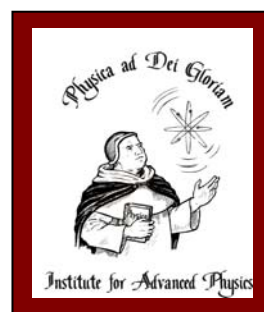
John Joseph O'Connell, MD is a radiation oncologist with the Prisma Health Cancer Institute in Greenville, SC. Prior to moving with his family to Greenville

six years ago, he had served twenty-one years as a physician in the U.S. Army. While serving the nation, he was awarded the Legion of Merit, Bronze Star Medal, Iraq Campaign Medal, Senior Parachutist Badge and the Zimbabwe Parachutist Badge. He is a distinguished graduate of the United States Military Academy, West Point. In 1989, he was awarded the Veterans of Foreign Wars Award for Classical and Modern Physics for having achieved the highest cumulative grades in classical and modern physics among his fellow graduates from West Point. Following West Point, he earned his medical degree from Georgetown University School of Medicine in 1993.

John holds a faculty appointment as a Clinical Assistant Professor at the Clemson University School of Health Research as well as an appointment as a Clinical Assistant Professor at the University of South Carolina School of Medicine – Greenville. He is the Clerkship Director in Radiation Oncology for 4th year medical students at the University of South Carolina School of Medicine - Greenville. He is collaborating with a faculty member in the Clemson University Department of Bioengineering to investigate the sequencing of oscillating electric fields with fractionated radiation treatments to increase lethality to breast cancer cells without increasing damage to normal tissues. In addition to his clinical

and research interests in improving the effectiveness of radiation treatments while reducing side effects, he recently received approval from his Institutional Review Board to conduct a clinical trial in outpatients diagnosed with COVID-19. This trial will investigate whether the combination of two over-the-counter medications, famotidine and n-acetyl cysteine, can reduce the severity of a COVID-19 infection and reduce the rate of hospitalizations. This trial is now only awaiting approval from the FDA before it can start accruing trial participants.

John is a native Marylander and a dual citizen of the United States and Ireland who was married in the Jubilee Year of 2000 AD to his wife Susan O'Connell, née Ruddell, of Tampa Florida. John and Susan have eight precious children, Katrina Marie, Michael Anthony, Patrick Ambrose, Gabriel Maximilian, Kevin Colmcille, Raphael Fionnbharr, Therese Marie and Faustina Marie. John is grateful and eager to start his work as an IAP member.



Want to become a member of the Institute for Advanced Physics?

Membership Levels

Certified (PhD in Physics)

Associate (BS in science)

Associate Humanities (BA in humanities)

Volunteer (Some college/job experience)

Membership information is available at

www.iapweb.org/membership.htm

Read about member activities in our newsletters

www.iapweb.org/curr_news.html

IAP's First Podcast and other resources

by John Paul Ochoa, Associate Humanities Member

New IAP Resources: IAP's First Podcast released and available on several platforms, *Decision for Truth* and *Why Physics is Essential to Our Lives* soon to be released on DVD!

IAP has published its groundbreaking podcast series:

“Conversations to Understand Our World, Interviews with Dr. Anthony Rizzi” (CUW).



In the CUW podcast series, **Dr. Anthony Rizzi** gives us deep insights and answers important questions about our world as only he can, starting with the things we know first through the senses, bringing home all of our thinking to the basic things we see right in front of our face.

In CUW, Dr. Rizzi reminds us that we start with what we know through the senses, which is the physical world, and that therefore, physics, the study of the physical world, is the starting point for *all* of our knowledge. With this simple starting point, Dr. Rizzi brings us back to our senses and leads us to profound insights in areas that impact our everyday lives, making the podcasts especially helpful and relevant. In the first episode of CUW entitled **“Economics,”** Dr. Rizzi, building on the basic physics, explains what money is and how to properly understand its role in our lives. In the second podcast episode, **“Covid-19: What’s True, What’s Not, and What is the Pandemic Doing to Us and Our Culture? Permanent Damage?”** Dr. Rizzi gives much needed guidance concerning the usage of

masks and proper hygiene, and he gives an update on where America falls compared to the rest of the world in terms of the spread of the virus that includes data and insights that you will not hear anywhere else. The CUW podcast series is already proving to be a key resource in helping us reclaim our common sense by grounding our thinking in the simple truths that we get through the senses and then integrating those truths into all areas of our lives.

Dr. Rizzi dynamically led the development of CUW with a team consisting of

IAP Associate Members:



Fletcher Williams



Anthony DiCarlo



Giuseppe Rizzi

as well as IAP Associate Humanities Member:

John Paul Ochoa



and new IAP Volunteer Member:

Ethan Robson



From October to December of 2020, the team met several times each week to work on the production and

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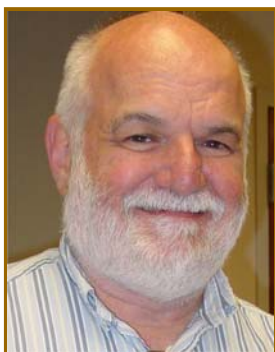
IAP's First Podcast, continued from page 12

post-production stages of this essential podcast series and more. Dr. Rizzi led the development of CUW by teaching the team how to have productive, truth-seeking conversations; how to think through the editing and technical production process; how to write, narrate, and design content that answers the most essential questions simply; how to root and grow our friendships and communities in the truth; how to properly use social media to advance the mission of the IAP; and much, much more. One further fruit of this work is that CUW is now available on **YouTube**, **Spotify**, and **Apple Music**, expanding IAP's ability to reach a wider audience and provide another resource to grow our culture in truth.

Be on the lookout for the upcoming third episode of CUW, which is entitled **"America."** In this episode, Dr. Rizzi will explain and unpack America's founding principles, which have largely been forgotten and confused because of our equation-only thinking. Tune in to begin reclaiming our true national identity!

Why Physics is Essential to Our Lives (IAP's 15th Anniversary Conference)

Dr. Rizzi also led another team, which included Associate Member **James Louviere**, in the production of the IAP DVD for the soon-to-be-released, *Why Physics is Essential to Our Lives, IAP's 15th Anniversary Conference 2018*. In this DVD, you will get a seat to watch the essential parts of the special *Science Before Science* everyman's sessions of the two-track IAP 15th Anniversary conference. You will sit in on a succinct summary of the important principles contained in Dr. Rizzi's *The Science Before Science: A Guide to Thinking in the 21st Century*, as well as how these principles affect our lives. These principles will fundamentally



change your life. The DVDs include talks given by IAP associate members, small group discussions based on the talks, as well as a Q&A session with Dr. Rizzi! This is a great resource to accompany your reading of *The Science Before Science*. The disks also include **Archbishop Cordileone of San Francisco's** address to the attendees and a short film about the role of



grace in your thinking that was also presented. And, as a bonus, the DVDs include footage from the 15th anniversary ball and banquet so you can celebrate all that the IAP has accomplished along with the IAP community!

Decision for Truth



Another team which included lots of work by Associate Humanities Member **Stephen Beaumont** (photo above) worked on IAP's upcoming, ground-breaking 5-part series, *Decision for Truth*, in which Dr. Rizzi is interviewed by **Noah Lett**, (right) IAP Volunteer Member and theology advisor at EWTN. Throughout the interviews, Dr. Rizzi captures our attention with the surprising and deep ramifications for our lives of the ***Continued on page 14***



IAP's First Podcast, continued from page 13

fundamental truths about physical nature that we get through the senses, the basic kid's level physics. The interview will raise unasked questions and unknown answers that are essential to living an intelligent, integrated, and happy life. By watching, you will be both inspired and equipped to begin fighting back against the anti-truth mindset of our modern culture. You will also be surprised to find the size and number of logs we have to take out of our own eyes! Inspire and grow yourself and your family to be who you and they are meant to be. Watch and learn what no one outside IAP knows!

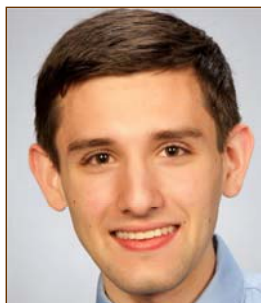
Please make use of these important resources and share them with your family and friends, and continue praying for the advancement of the mission of the IAP. Also,

please consider making a financial contribution to the IAP so that it can continue its essential work. IAP is a non-profit organization that relies on your generosity to make resources like the ones above available to a world that is starved for fundamental truth.

Visit IAPweb.org and donate today!



John Paul Ochoa has been an Associate Humanities Member since 2020. He is a teacher with an M.E. from The University of Notre Dame. He has a Master of Arts in Theology from the Dominican School of Philosophy and Theology, an affiliate of University of California, Berkeley.



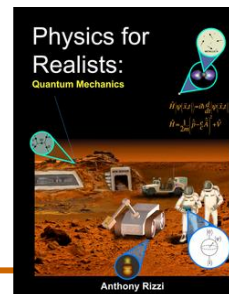
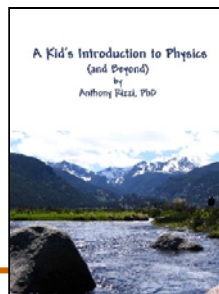
IAP is nearing completion of a **NEW ONLINE STORE**. It is being created by IAP Associate Member **Giuseppe Rizzi** (left) and vetted by **Frank Camacho** and other IAP people who started in June 2020 on the project. We invite you to visit our store and make online donations at: IAPweb.org/store

“Reality doesn’t disappear just because it’s quantum”



is an article by philosopher and Member **Chris Morrissey** published in **The B.C. Catholic** on May 26, 2020. Morrissey features Dr. Rizzi’s *Physics for Realists Quantum Mechanics* and *A Kid’s Introduction to Physics (and Beyond)*.

Read the article at <https://bccatholic.ca/voices/c-s-morrissey/reality-doesn-t-disappear-just-because-it-s-quantum>



Christendom College freshman leads *Science Before Science* study group

by Michael Stapleton, student



My first semester of study at **Christendom College** has been an extraordinary one, largely because of my helping to lead a study group of Dr. Anthony Rizzi's *The Science Before Science: A Guide to Thinking in the 21st Century* (SBS) for my peers. Prior to this experience, I had completed my own study of the book in another group, which was undoubtedly the most important study and indeed the most important action I had ever taken. Many people, especially Catholics, have heard at some point that "the end of man is to know the truth," or something very similar. Precious few ever stop to think about what that means, and fewer still realize that they simply do not know, and that no one can tell them. I came to this crucial recognition when I was exposed to the work of the Institute for Advanced Physics (IAP)—the only organization with the answers to the questions "what does it mean to know," and "what is truth?" In my first study group, I learned that to answer these questions requires one to start with the first things one knows; that is, what he knows through the senses. I was astounded to realize my ignorance of realities which are literally right in front of my face, but once I had begun to rectify my deficiency through studying the SBS, I was eager to share what I had learned.

I became even more intent on doing so when I came to Christendom, where I saw that my peers (as is the case everywhere) lacked the fundamental knowledge which must ground our thinking and is necessary to understand anything beyond itself. It was my privilege to participate in leading a study group this semester, comprised of myself in collaboration with **Giuseppe Rizzi** (IAP Associate Member) and **Ethan Robson** (IAP

Volunteer Member) as well as students from **Christendom College**, **Louisiana State University**, **Texas A&M University**, and the **University of Tennessee**. COVID-19 was the inspiration for the combination of students from various universities. During this pandemic, Zoom is our primary means for meeting. This opened the door for combining the local Zoom meetings with a joint Zoom meeting for several schools. **Dr. Anthony Rizzi**, SBS author, made a guest appearance on November 9th to speak to the group.

In teaching with Ethan and Giuseppe as a mentor, I participated in multiple meetings with them in which I not only learned how to instruct, but also broadened my own knowledge of the material. The entire process was invaluable to me since I revisited the first half of the SBS as we taught it. And this is an important point: the material requires continued study and rereading in order to understand. Thus, through working with a remarkable group of individuals I was reminded that I have only just begun to learn and was able to help give others the same foundation. This is to say nothing of the joy of watching my friends at Christendom learn and desire to know more, and of assisting them personally with the material outside meetings and after our group ended! I am indebted to my fellow leaders, the group's participants, and the IAP for such a fruitful study and experience; and I look forward to future study groups and learning.



Michael Stapleton is a freshman at Christendom College. Science Before Science study groups are meeting at colleges across the nation. Please contact us at 225-667-0233 if you need help starting one on your campus.

The Institute for Advanced Physics

Science Before Science women's group



Throughout the Summer and Fall of 2020, **Fletcher Williams**, IAP Assistant Professor of Practice, led a group study of *The Science Before Science: a Guide to Thinking in the 21st Century* (SBS) and *A Kid's Introduction to Physics (and Beyond)* (KIP), both by Dr. Anthony Rizzi. Volunteer Member **Krish Ramanathan** assisted with the group which met via Skype.

The participants were women with an interest in science or math who have shown a strong desire to deepen their understanding of the principles found in SBS. One participant, Hannah, explained, *"Being part of this study group has been a wonderful experience for me! Getting to discuss the material with other women was a particularly unique experience. Being able to hear questions from others has helped me to be more inquisitive myself and hearing the answers, I was able to understand the principles much more deeply. This group has helped sharpen me and pushed me to find more time for study in my day. I am eager to continue studying IAP material and deepening my understanding even more!"*

Krish Ramanathan has been an IAP Volunteer Member since 2017. He has a degree in business management and is currently employed as a Business Process Analyst in South Carolina.



Anthony Rizzi on WCAT RADIO

Dr. Peter Mango, host and philosopher, on December 10th, interviewed Dr. Anthony Rizzi discussing the Institute for Advanced Physics from its beginnings to why knowledge of the physical world (physics) is essential for all of us.

Program to air soon. <https://wcatradio.com/>

Ethan Robson, New IAP Volunteer Member



Ethan Robson is currently a sophomore majoring in chemical engineering at **The University of Tennessee, Knoxville**. He first learned about The

Institute for Advanced Physics through his high school calculus teacher, IAP Associate Member **Fletcher Williams**. Ethan's first exposure to IAP material was through a reading assignment he got from Mr. Williams at the beginning of the year to read the *How to Learn in Four Steps* article, but Mr. Williams later reintroduced IAP to Ethan by approaching him one day after class towards the end of the school year and asking Ethan a few questions about physics and Catholicism. After this discussion, Ethan realized he had much to learn and began studying *The Science Before Science* under the guidance of Mr. Williams. Mr. Williams taught Ethan the book during the summer after Ethan graduated high school by having him over to his apartment weekly and running through the book chapter by chapter.

This guidance happened at a critical point in Ethan's life, and it prepared him to be on guard against all kinds of scientism present on his college campus and everywhere else in modern culture. Ethan says, *"Without the material that the IAP teaches, it seems to me there is nothing. This nothingness is exactly what I was feeling when I decided to become an atheist at the age of fifteen years old while enrolled in a Catholic high school and living with my actively practicing Catholic family. I lived this way for nearly 4 years, until I learned the material of IAP and understood the world for the first time. After this, I immediately converted back to Catholicism and I am now proud to be Catholic*

and a Volunteer Member of IAP. I think everyone needs to study this material, because without the IAP we have no way of understanding God, our fellow man, or the physical world."

While earning his degree in college, Ethan has been involved in various IAP activities such as ushering for the IAP Zoom Masses and assisting Associate Member **Anthony DiCarlo** with his study group for MIT students that covered *The Science Before Science* and various IAP articles. Mentored by Associate Member **Giuseppe Rizzi**, Ethan is also currently leading a study group for LSU students that is going over the first five chapters of *The Science Before Science* and the accompanying DVD series.

In addition to studying and working to advance the mission of The Institute, Ethan enjoys hobbies like playing intramural sports, managing the fish-plant-chemical ecosystem in his two aquariums, and reading. Ethan sees the deep importance of IAP's work, and is committed to continuing to learn all he can of what IAP has to teach, even as it is discovered for the first time. He looks forward, as well, to deepening his involvement in IAP. He enjoys sharing IAP material with his family, friends, and others seeking to learn the truth.

Read Dr. Rizzi's articles in
**The Latin Mass
 Magazine**

The Death of Justice?

September 2020

and

How to Learn in Four Steps?

December 2020

The Institute for Advanced Physics

Two Types of Empiriological People

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 "Two Types of Empiriological People."

Our empiriological¹ culture tends to create two types of errors in people. This, in turn, creates two types of people, one for each type of error.² Each of these groups is anti-truth in its primal mindset, even though some in each category might actually use and defend the word truth! Both groups are unaware of the foundation of their positions and, if confronted with a clear exposition of their actual lived

¹ The empiriological method is the paradigm for understanding today and *it is in fact the modern scientific method* though its nature is currently understood by only relatively few. Its core is clearly defined and discussed for the first time in A. Rizzi, *Kid's Introduction to Physics and Beyond*, IAPpress, Baton Rouge, 2014 (KIP), and *The Science Before Science: A Guide to Thinking in the 21st Century*, IAPpress, Baton Rouge, 2004 (SBS) and "What is Science?" *Physics and Culture* (Feb 2019) at iapweb.org/iapmagazine.htm; see also textbooks at iapweb.org/store. The empiriological method looks at the world primarily through the property of quantity using a system of rules and symbols, such as equations, to organize information and make predictions about the world. The most profound form of the empiriological method is the empiriometric method, which utilizes equations. It is the study of the empirical (empirio) world, the physical world, through a system of logic (logical).

² This is not an exhaustive division. There is an even deeper, more complete classification that is not discussed here. In it there are those that accept the current scientific direction, and those that resist it. Note, the relative character of the positions; the second group is only defined relative to the first group; all may be accepting of some or all of the tenets previously or presently ensconced by scientism. All of us are born into and share the core elements of scientism which is the fruit of our equation-alone physics at the base of our thinking. See footnote 1 for references giving more explanation of this situation.

beliefs and thoughts, would be alarmed and likely deny that they hold them!

On the one hand, the first group tends to act as if all intellectual problems are superficial and can be resolved by sayings and metaphors. No proof or clear reasoned argument is needed. To this group, getting to truth is an easy affair. Shockingly, "truth" is, to some large extent, just a word they use. It's not even a word they use much if at all unless prompted. People in this group think that certain things, even important ones, are *obviously* right, so to defend them you can just use loose metaphors to take you and your audience to where you want to go. On this side, people tend to grossly overestimate the ease with which man's intellect can get to truth and tend to think anyone who doesn't think what they think just has a bad will, i.e. is bad, (sinning).³ This first view is very common outside the hard sciences.

In this first category, you will have some who will say if asked: "Yes, I know there is truth and think it can indeed be attained." But, follow up discussion on what is meant by this usually reveals that their words express a stance that they wish they could have but don't actually have. Moreover, it usually simultaneously reveals that their statement is really, at some deep level, disappointingly, a non-understood parroting of words.....

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³ Thus, for the first group, you need apply only minimal intellectual work to understand the truth that the opposition has and even to understand the truth you yourself have. Work, for this group, is mostly needed only to properly direct political and social power.

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 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.

In September 2020, Dr. Rizzi completed a ground-breaking article

What is America?

which will be published soon.

What is the cause of the rabid attack on American principles? American principles are diametrically opposed to the principles of the equation-alone based physics, and so, of its nature, the scientism that has taken deep hold of us naturally undermines our American heritage. Dr. Rizzi explains that it is essentially important to re-access our root principles. **Really, for the first time, Dr. Rizzi illuminates America's foundation in the natural law thru the first physics and the threat that foundation faces.** He discusses how the principles of that foundation passed from the deep past, from core Western Tradition, to the American Founders.

We all need to understand what America is and the existential threat she faces. To do so, we need to return to the principles in the physical world through which the nature of America is understood. And, for us moderns to understand the physical world requires a knowledge of modern physics. So, only a physicist can explain it. Only a physicist who has done the work of grounding his own thinking in the first physics can do it. Be part of the solution: come purchase and read this new article when it is released in January or February 2021.