



THE INSTITUTE FOR ADVANCED PHYSICS

The Institute News

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Twelfth Annual IAP Conference Quantum Mechanics

by Ken Klenk, Ph.D., IAP Certified Member
photos courtesy of Paul Andrews and Ken Klenk

The 12th Annual Institute for Advanced Physics (IAP) Conference was held at **Louisiana State University** in Baton Rouge on July 30 to August 2, 2014. Discussion at the meeting focused on pushing even further our understanding of the physical meaning of quantum mechanics which will culminate in the production of our 3rd college textbook -*Physics for Realists: Quantum Mechanics*.

A pre-conference session on Wednesday afternoon began with a round table discussion of the various key concepts of the basic physics that need to be integrated into the teaching of physics at both the high school and college levels. The title of the session was "Primer on Physics for Realists: Mechanics and E&M". IAP Faculty **Dr. Murray Daw** led the discussions and [Story continues on page 2](#)



IAP faculty and members (standing, left to right) **Dr. Jim Stoner, Dr. Ken Klenk, Fr. Neal Nichols, Dr. Dan Lejeune, Stephen Strickland, Dr. Anthony Rizzi, Maikel Garcia, Dr. Ted Dickel, Paul Andrews, Mrs. Edwina Andrews (IAP student),** (kneeling, left to right) **Dr. Alan Wright, Dr. Murray Daw, Anthony DiCarlo, Dr. Joe Martin, Frank Camacho, Dr. Dan Welch, David Giroir and James Louviere**

Annual conference story continued from page 1...

contributed lessons learned from his many years of teaching *Physics for Realists* at Clemson University. Dr. Rizzi provided unique insights into the material. Participants were engaged and many interesting discussions were made.

At this year's conference, three new members were inducted into the Institute. **Dr. Alan Wright**, a physicist working at Sandia Labs in Albuquerque, NM, completed the requirements for becoming a **Certified Member**. **Two individuals became Associate Members, Level II – Paul Andrews** (B.S. and M.S. from New Mexico State University, Las Cruces in Electrical Engineering) and **Frank Camacho** (B.S. and M.S. from MIT in Electrical Engineering). New Associate Member, Level II, **J. Kevin Hix, M.D.** was not able to be present at the conference this year. *Read more about our new members in our Spring 2014 newsletter at iapweb.org/newsletter_sp14.pdf*

The work of the conference was primarily the physical understanding of quantum mechanics. Such topics as the Bohm-De Broglie mechanics, Lagrangian dynamics, understanding Bell and EPR, stochastic electrodynamics and identical particles and spin were among the key topics discussed. **Dr. Anthony Rizzi** gave outstanding overviews of the research that the Institute has accomplished thus far in understanding the extensive field of quantum mechanics. It is impressive how far the Institute has come. Dr. Rizzi also gave a tentative table of contents for the textbook and continued his presentation from last year on "*The Scientism after Science*".

Dr. Joe Martin discussed the instruments used on actual missions to Mars and which will be used as a practical application in the Quantum Mechanics textbook. **Dr. Joe Haller** contributed a report (*in absentia*) on the Monte Carlo computations he is doing to support research on certain aspects of stochastic electrodynamics. **Dr. Murray Daw** discussed some of the research he is doing in support of Bohm-De Broglie mechanics. **Dr. Ken Klenk** updated his research on quantum history to be used as resource for the book. **Dr. Stephen Strickland** gave a talk on quantum computing.

Anthony Di Carlo is leading a work group in the development of an Algebra Guide – a companion book to the *Physics for Realists* series for high school students. **Maikel Garcia** and **Mrs. Edwina Andrews**, an IAP student, participated in the break out sessions on the guide development.

Dr. Dan Welch and **Dr. Dan Lejeune** provided experiments on Quantum Eraser and Brownian motion on Thursday and Friday evenings. **Father Neal Nichols, FSSP**, the IAP chaplain, offered Mass each morning and was available to hear confessions. He participated in the conference sessions during the day leading the attendees in prayers before and after the meetings. Also in attendance was **Dr. Ted Dickel**, who is following up with research on bouncing droplets that show quantum-mechanic-like behavior, **James Louviere**, who provided video recording of segments of the conference, **Dr. Jim Stoner**, who provided logistics support before, and **David Giroir**, who provided logistics support during the conference.



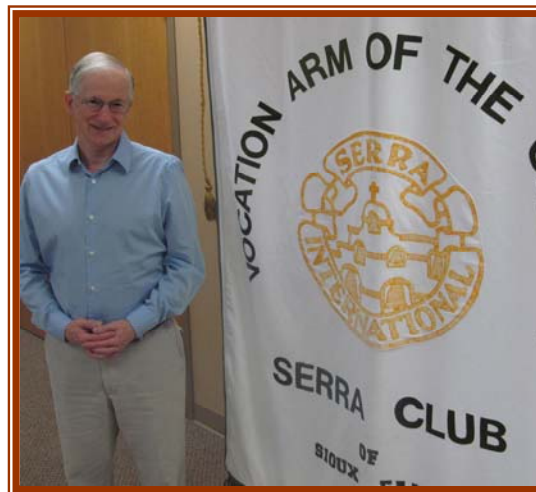
Dr. Rizzi presents certificates to new members Dr. Alan Wright, Paul Andrews and Frank Camacho

Ken Klenk addresses Serra Club in Sioux Falls

Certified Member, Dr. Ken Klenk, addressed the **Serra Club of Sioux Falls, SD**, on the 10th of May on the importance of having a sound physics at the basis of our knowledge. The Serra Club's mission is to support seminarians and priests through prayers and good works. Dr. Klenk talked about the need for Catholic faithful to understand the fundamental physics (*physica*) so that their faith doesn't become a belief-based proposition but a faith which is built on reason. He stressed that they needed to get access to this preamble to all of our knowing and of the faith. Since the Serra Club fosters vocations, he further mentioned the need for this foundational physics in the training of future priests.

Dr. Klenk explained that only the Institute for Advanced Physics is doing this foundational work. He told his audience that, for the first time ever, this preamble is now available in *A Kid's Introduction to Physics (and Beyond)*. He

also recommended that they watch IAP's *Physics for First Communion* DVD series. Also, he talked about *The Science Before Science* and the work the Institute is doing developing a college level physics textbooks series, *Physics for Realists*. For more information about these books and the DVD series, visit our web site at iapweb.org/store/kids.html#video



EWTN Bookmark: *A Kid's Introduction to Physics*



EWTN Bookmark host Doug Keck interviews renowned physicist and Thomist Dr. Anthony Rizzi about his latest book which gives us the kid's level fundamentals that we were never given. Without it, we are on sinking ground, but with it, we have the foundation to think properly, including the ability to know with

certainty that God exists and the ability to teach others, especially our children.

The Preamble of the Faith has been all but forgotten. Dr. Rizzi's new book gives us, for the first time at the grade school level, this preamble in light of modern scientific thinking. It is the general framework for all of our knowledge given in simple terms, leading us from the things we see and hear as small children to the scientific method and finally proving the existence of God. Join us to learn why this book contains the basic general concepts needed to properly understand anything, including the material in any science text—it is a necessary supplement to your child's science texts. Without this book, we are left without a big picture and without a ground for any of our thinking, acting and believing.

youtube.com/watch?v=610zTNHSIBM

Why a Fuller Physics is Important for Everyone



Dr. Murray S. Daw, R. A. Bowen Professor of Physics Department of Physics & Astronomy Clemson University, is an IAP faculty member since 2006 involved in teaching and research. Dr. Daw teaches *Physics for Realists* to college students and at physics colloquiums. On September 17, 2014, Dr. Daw presented *Why a Fuller Physics is Important for Everyone* at **Bagley College of Engineering at Mississippi State University**. Prof. Daw was invited by Mark Horstemeyer, who has a professor in the Mechanical Engineering Department at Mississippi State and also has a chair in the Center for Advanced

Vehicular Systems (CAVS) there.

Daw begins by quoting Richard Feynman, “If you really understand something well, you should be able to explain it in simple terms.” Daw continues to explain, “Are physicists good at explaining things in simple terms? Not by reputation, certainly. In this talk, we will trace the difficulty that physicists face in explaining things back to a fundamental characteristic of the way that they understand physical things.

Modern physicists place a disproportionate emphasis on a formal, symbolic system. This displaces their natural, generic understanding of physical things. We will demonstrate how properly to ground our understanding of physics in our common experience of the world. A solid understanding of this grounding benefits everyone.

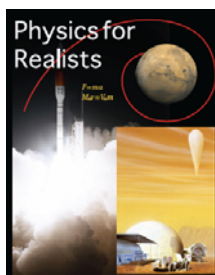
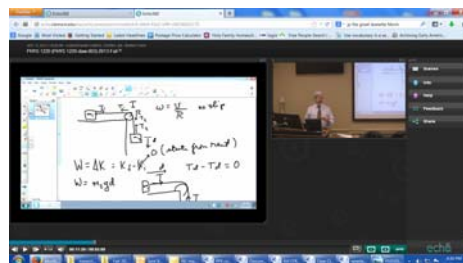


Free Online Physics for Realist Lectures

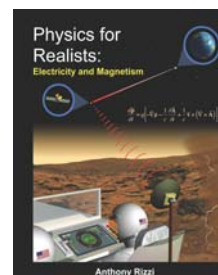
Now, through an online course, you can learn physics in its fully integrated form discovered by IAP. Clemson University has made available online for its students and the general public the lectures for its Introductory Physics with Calculus (Physics 1220). This is the first semester of three in the calculus-based physics sequence. Topics in the first semester include vectors, laws of motion, conservation principles, rotational motion, oscillations, and gravitation.

Find the link on our homepage:

<http://echo.clemson.edu/ess/portal/section/822988de-08f8-4e78-b699-518919c635a4>



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iapweb.org/store/



How to Learn in Four Steps

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 a core question that we work out when we are children but, like all things of this type, we never really think about.

Few people have thought much about how we learn. As children, we went to school to learn and we continue to do it in lesser ways in living everyday life, but we seldom think about it. Yet, there is much to learn and when a heavy need arises, whether it be how to make a web page or how to decide what is the right thing to do in a new situation, it can be overwhelming and intimidating to try to figure out even how to begin. Our world is constantly changing, but one of its necessary *constants* is the need to learn.

At the Institute for Advanced Physics (IAP) we make new discoveries everyday. Since the IAP is an educational as well as a research organization, we are constantly meeting and helping people learn these new ideas and ways of thinking and living. During this process, we have seen over and over again how little people know how to

learn. Since our work is at the core starting point of all human thinking and, thus, acting, and since people have been given so little on how to learn, I've written this short article to fill the gap to help people learn how to learn.

How then do we learn? The process is fairly simple to understand, but requires real commitment, effort, and time to successfully carry out.

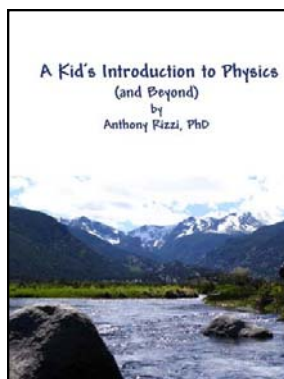
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[Click here to read more or go to this link:](#)

[iapweb.org/articles/How to Learn in Four Steps A2014-IAPmagazine.pdf](http://iapweb.org/articles/How%20to%20Learn%20in%20Four%20Steps%20A2014-IAPmagazine.pdf)

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 (an eleven year old non-profit organization with Vatican backing), gained worldwide recognition in theoretical physics by solving an 80-year old problem in Einstein's theory. He has physics's degrees from MIT and Princeton University. Prior to IAP, he was senior scientist at Cal-Tech's Louisiana LIGO and taught at LSU.



IAP needs your help

promoting *A Kid's Introduction to Physics (and Beyond)* book and *Physics for First Communion* DVD series to schools and parishes. If you would like to volunteer your time to contact educators, please send us an email, including your telephone number, at info@iapweb.org

Please consider joining our volunteer team!

