



THE INSTITUTE FOR ADVANCED PHYSICS

The Institute News

- 11th annual members' conference at Louisiana State University
- *Ask Dr. Rizzi*: home school mom asks about action and reception
- Free online *Physics for Realists* course lectures
- *In the news...*IAP membership courses, teacher workshops, EWTN Live
- *How do I know my hand causes movement?* by Dr. Rizzi

Eleventh Annual IAP Conference Quantum Mechanics

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

The Eleventh Annual Institute for Advanced Physics (IAP) Conference took place at **Louisiana State University** on July 24-27, 2013. The focus of this year's conference was in further unpacking the full physical meaning of quantum mechanics, which will, in turn, be published in the third textbook in the *Physics for Realists* (PFR) series, *Quantum Mechanics*. On Wednesday afternoon, prior to the meeting's official kick-off, IAP faculty **Dr. Murray Daw** gave an informative primer on the deep and wide content of the *Physics for Realist* textbooks for both mechanics and electricity and magnetism. He also discussed how to teach it. *Story continues on page 2*



IAP faculty and members (*standing, left to right*) **Dr. Dan Lejeune, Dr. Ted Dickel, Stephen Strickland, Dr. Joe Haller, Dr. Anthony Rizzi, Maikel Garcia, Dr. Jim Stoner, Fr. Neal Nichols, (kneeling, left to right)** **Dr. Ken Klenk, Dr. Dan Welch, Dr. Joe Martin, Anthony DiCarlo, Dr. Murray Daw, Don Caffery and James Louviere**

Annual conference story continued from page 1...

The conference addressed the status of IAP's progress in discovering the fully physical meaning Quantum Mechanics. Quantum Mechanics, like Mechanics, E&M and Special Relativity and the others IAP has already figured out, is fraught with confusions as the modern theories before IAP's work are equation centered, i.e. empiriometric. As such, relative to a truly physical understanding, many implicit and explicit errors are contained in their standard formulations. However, unlike Mechanics and E&M and to a lesser extent unlike even Special Relativity, where many are okay with the physical interpretations, physicists tend to be restless about our understanding of Quantum Mechanics.

Dr. Anthony Rizzi started the meeting with an introduction to the various issues we confront and the approaches that we are taking to solve the problems in Quantum Mechanics. He also gave a table of contents for the textbook. Bohm-de Broglie mechanics was discussed further by **Dr. Daw**. Dr. Rizzi presented, for the first time, a fully physical understanding of the equational formalism of Lagrangian dynamics. Dr. Rizzi and others explained and discussed stochastic electrodynamics (SED). **Dr. Joe Haller** presented his work in programming aspects of SED leading to tests he plans to conduct on the theory. Dr. Rizzi gave a talk on "The Scientism after Science," showing through recent history and pop culture, how our *empiriometric only* science is destroying our culture.

Dr. Ken Klenk gave an update on his work researching the backgrounds of several of the quantum physicists. He looked at their religious backgrounds and expressed religious convictions. **Dr. Joe Martin** presented an update on experiments used or proposed to explore Mars that will be considered as candidate instruments for the special application theme for the quantum textbook.

Mr. **Anthony Di Carlo** presented a talk on his experience as a math teacher in using the new

discoveries of the IAP and Mr. **Maikel Garica**, who has a great deal of experience in high school teaching physics and works with several teaching organizations in the Houston area, gave an outline of the many endeavors that he has planned for using *Physics for Realists* and the *Kid's Introduction to Physics (and Beyond)* in private, public and home schools.

Two individuals were recognized at the meeting for completing IAP membership requirements and Dr. Rizzi presented them with certificates: **Dr. Doyl Dickel Certified Member** and **Mr. Maikel Garcia Associate Member II**. We invite you to learn more about Dr. Dickel in our fall 2012 newsletter, page 4 at



iapweb.org/newletter_fa12.pdf and about Maikel in our spring 2013 newsletter, on page 3 at iapweb.org/newletter_sp13.pdf



A party celebrating the 10th Anniversary of the Institute for Advanced Physics was held on Friday evening. Many members read letters that they wrote addressed to Dr. Rizzi expressing their deep gratitude for the work and guidance of the Institute over the years.

Father Neal Nichols, FSSP, the IAP chaplain and who has been with the institute since its beginning, was there to provide spiritual guidance, offer Mass, hear confessions and in general to be a source of inspiration to all

Story continues on page 3

attendees. The IAP members are very grateful for Fr. Nichols ten years of service to the IAP mission and its members.

"The conference was wonderful! It is one of the high points of my year!" IAP certified member **Stephen Strickland** is a graduate student at **North Carolina State University** with a Graduate Fellowship. He received his B.S. in Physics and Mathematics with a minor in Computer Science and an emphasis in Computational Science from **Wofford College** in 2010 under the mentorship of IAP Certified Member **Dr. Daniel W. Welch**. While an undergraduate, he worked an internship at **NASA's Jet Propulsion Laboratory**.



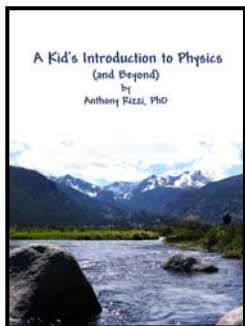
*Ten candles, one for each year of IAP 2003 – 2013. **Happy 10th Anniversary Institute for Advanced Physics!***

Ask Dr Rizzi: Home School Mom asks about Action and Reception

Dear Dr. Rizzi,

*I am home schooling my daughters and we have been reading your book *A Kid's Introduction to Physics (and Beyond)*.*

We are on chapter 4 and reading about the nine types of properties. I am struggling to understand action and reception and am writing to ask if you could give me some examples. Does it mean how a metal, for example, reacts to being heated?



Also could you please tell me whether the orange juice squeezed from an orange is a change of substance or a change of form. Thank you.

We are really enjoying the book. God bless, Julienne from Edinburgh, Scotland

Dear Julienne,

... Action and reception are very much simpler than what you seem to suggest. Something acts (it is thus in action) on something else that receives the action (this something else is then in reception). For example, you touch a cold plate. The action is the finger heating the plate; the reception is the plate receiving the heat. Or again, consider a ball hitting a wall. The ball acts on the wall, the wall receives the action. In every change

there is an acting thing (called "agent") and a receiving thing (called "patient"). Action and reception go together like top and bottom. In your example, a metal getting heated by a blow torch: The blow torch is heating the metal; thus, the blow torch is acting, the metal is receiving this action. A result of this is the metal melting for example, changing from solid to liquid. This change from solid to liquid is a change in accident in the category quality that results from the action of the blow torch and the reception of the action by the metal.

As for the orange: If the orange is on a tree it is part of the substance which we call an orange tree. If I squeeze the orange till fluid drips out, I have effectively cut off (i.e. separated) a part of the tree. Thus, this is a substance change, because the fluid that comes out is no longer part of the tree but now a separate substance or mixture of substances.

God bless,
Dr. Rizzi

If you have a question about the material in one of Dr. Rizzi's books, please write him at info@iapweb.org.

A Kid's Introduction to Physics (and Beyond) (which is 6x8, 70 pages, 14 font, soft cover) may be purchased for \$12 plus shipping and handling on the IAP web site at: www.iapweb.org/store/kids

Free Online Physics for Realist Lectures



Now, through an online course, you can learn physics in its fully integrated form discovered by IAP (see [top center of iapweb.org](http://topcenterofiapweb.org) "Online Lectures in Physics").

Clemson University has made available online for its students and the general public the lectures for its Introductory Physics with Calculus (Physics 1220). Using Echo 360, a Lecture Capture System, Clemson faculty are able to record audio, course visuals, and optional video for students to review in digital format. **Dr. Murray Daw, IAP Adjunct Prof and Clemson's Bowen Professor of Physics** uses the system for his freshman mechanics course. 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.

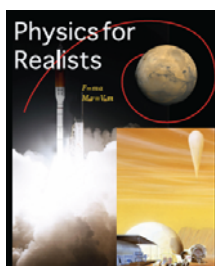
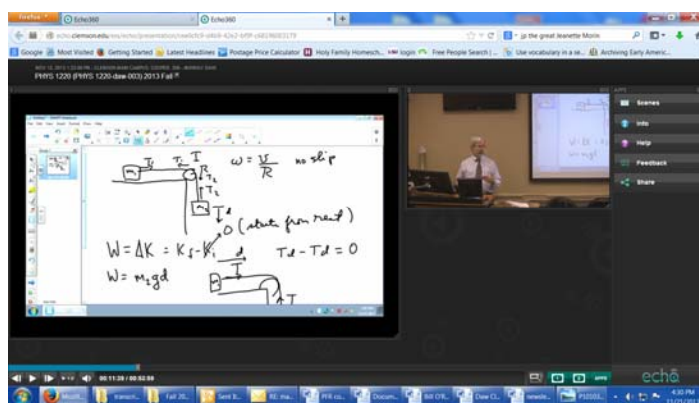
Each year 15-20 physics majors at Clemson begin their undergraduate curriculum by taking this introductory course. The first two semesters of this course are now based on Dr. Rizzi's groundbreaking textbook *Physics for Realists: Modern Physics with a Common-Sense Grounding (PFR)* published by IAP Press of the Institute for Advanced Physics. The first semester is based on the first volume (*Mechanics*), and the second semester based on the second volume (*Electricity & Magnetism*). The traditional course topics are now integrated with the first principles given

through the senses as presented for the first time in *PFR*. **New content, new integration!**

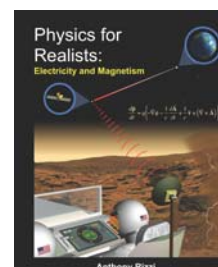
Dr. Daw is now in his fifth year of teaching this course using *PFR*, and is pleased to have attended last May the awarding of the Bachelor of Science degrees to the first crop of such *PFR* alumni.

This year Prof. Daw, in response to numerous inquiries from outside Clemson about the *PFR* textbook, decided to use the ECHO 360 classroom to record his actual lectures in the Mechanics semester. Viewers, using the streaming content, can see and hear the lecturer, clearly view the lecturer's writing on the tablet, listen to students' questions, and also download the lecturer's podium notes. These lectures are made available to the general public through the generosity of Clemson University. Students taking the course also benefit from reviewing the podium notes and recorded lectures again after the class. Find the link on our homepage:

<http://echo.clemson.edu/ess/portal/section/4888ad3c-eea9-475e-9b51-d0ef069dd0ea>

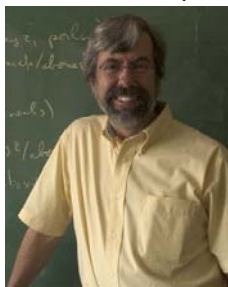


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iapweb.org/store/



In the news.....

Membership training



IAP welcomes certified member and associate member candidates. Dr. Murray Daw, IAP Adjunct Prof and Bowen Professor of Physics is teaching two courses this fall. He is teaching a physicist in our

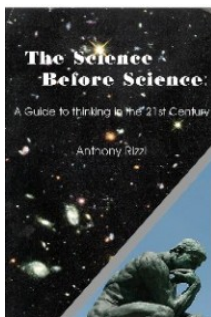
Certified Membership program. The course lasts over a semester and includes lecture, discussions, written homework and a written final exam. Online meeting times are set up by faculty and member candidates. He is also teaching another semester course for five IAP Associate Member candidates. For information on how to enroll call (225) 667-0233 or go to www.iapweb.org/membership.htm

LSU Political Science Professor James R. Stoner Jr., previous member of the National Council on the Humanities and currently a Garwood visiting professor at Princeton University invited



Dr. Rizzi, IAP founder and Director, as a guest lecturer for Dr. Stoner's **Aristotle and**

Aquinas course at Louisiana State University. Dr. Stoner uses Rizzi's *Science Before Science: A Guide to Thinking in the 21st Century* as the textbook for his course. The book is used in universities around the country. Order your copy online at sites like Amazon.



Coming soon.....

IAP is producing a video based on Dr. Rizzi's *A Kids Intro to physics (And Beyond)* directed towards preparing children to receive first Holy Communion. The video will be based on discussions between Dr. Anthony Rizzi, MIT/Princeton PhD physicist, and his six year old daughter. Email to info@iapweb.org to receive notification when the DVD's are available --DVD format; approx. 4 1/2 hrs total (9 episodes); *Available soon!*



**Wednesday,
December 4, 2013
8:00pm ET**

Fr. Mitch Pacwa interviews Dr. Anthony Rizzi on EWTN Live, They will discuss Dr. Rizzi's new book, *A Kid's Introduction to Physics (and Beyond)*, explaining ***how physics can save us from the culture of death, including its core atheism.*** Dr. Rizzi's book provides for the first time, at this level, the first principles of thinking given through the senses integrated with modern science. *New material, new integration!* This material for adults and children is newly discovered by Dr. Rizzi. Check the EWTN web site for encore and archive presentations.

Teacher workshops

IAP Associate Members Maikel Garcia and Anthony DiCarlo provide online workshops for elementary and high school science teachers. The workshops meet one afternoon a week for three or four weeks. IAP invites teachers and administrators to contact us at (225) 667-0233 for information on how to participate in a workshop.

How Do I Know My Hand Causes Movement?

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.

This title can be misleading. My hand causes movement but *indirectly*. We will see exactly what this means as we uncover the answer to this seemingly easy question. Indeed, the question can seem so trivial and obvious that it seems stupid to ask it. In fact, it is, in a way, so obvious that we have not paid enough attention to it to really know the answer in any kind of clear way. Deep confusion has beset the modern mind because we have not paid sufficient attention to such basic physics questions.

A recent conversation with a physicist colleague of mine provides an example of this confusion and provided impetus for me to write this article. My colleague thought that

the *average* man did not think uniform motion, i.e. moving at a constant speed, needed a cause but thought accelerated motion did.¹ When asked why people think that uniform motion does not need a cause, he said they think there is no need because one only has to get a body going then it keeps going, since there is nothing to stop it.² When asked why the acceleration doesn't continue after you start a body accelerating, he simply answered that I don't see it continue to accelerate after I start it. So, he shifted from giving an explanation (there's nothing to stop it) to stating *what* happens (it doesn't do that). Next, I asked him why people think a ball, for

[Click here to read more or go to this link: iapweb.org/How do I know my Hand causes movement.pdf](http://iapweb.org/How%20do%20I%20know%20my%20Hand%20causes%20movement.pdf)

Anthony Rizzi, Ph.D., founder and Director of The Institute for Advanced Physics (an eight 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 degrees from MIT and Princeton University. Prior to IAP, he was senior scientist at Cal-Tech's Louisiana LIGO and taught at LSU.

¹ I emphasize: this conversation was only about what my colleague thought the everyman thought, not about his own thinking.

² This description, in fact, is not typical of the everyman but peculiar to educated physicists who know Newton's first law which says, in part, that objects in uniform linear motion continue in uniform linear motion unless acted on by an outside force. The everyman sees things slow down and posits the need to keep pushing things to keep them moving, and has not sorted out the difference between friction and impetus (see my Kid's physics book referenced in footnote 4 for more on impetus and friction); of course, neither has the educated physicist, but he does know the effects at some abstract and real level.