

Spring 2011



THE INSTITUTE FOR ADVANCED PHYSICS

The Institute News

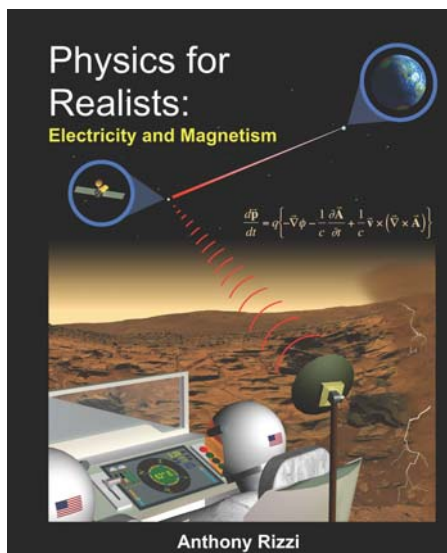
- **New Release: *Physics for Realists: Electricity and Magnetism***
- Prof. Daw presents PFR at AAPT regional meeting
- IAP welcomes new Associate Member Anthony DiCarlo
- Science “To Serve Man:” A Parable from the Twilight Zone

New Release this July!

The Institute for Advanced Physics announces the publication of:

Physics for Realists: Electricity & Magnetism

“With the release of *Physics for Realists: Electricity and Magnetism*, for the first time in human history, the two pillars of modern physics (mechanics and E&M) are grounded in the simple common sense principles that at some level, every child knows.” **Dan Welch, Professor of Physics, Wofford College, SC**



The wonder and awe that nature elicits through her deep beauty is hampered when textbooks and teachers leap-frog over the student’s common sense. Indeed, it is precisely the contact with reality given in everyday life that is the starting point of science.

In this second volume of the *Physics for Realists* series, we cover electricity and magnetism (E&M) from a point of view that keeps contact with one’s pre-scientific experience. This is what we mean by *Physics for Realists*. It brings out and emphasizes that physics is about the world we see around us. It starts with what we see in front of us and leads us to study things too small (in size or influence) or too far away to see. It applies to the entire physical universe.

This starting point makes this text unique. Indeed, this text distinguishes itself in at least six major ways:

- 1. Common sense starting point**, building on the platform established in the first volume. Everything in standard E&M, from the deepest (empiriometric) physics to the most esoteric mathematical formalism, is grounded in the things that we see, hear or feel.
- 2. Unifying practical theme** in addition to theoretical theme. The student learns the principles behind an RF transmitter that he can actually build in the final chapter (all instructions including how to order the circuit board and parts are included). The larger theme, initiated in volume one, of a manned trip to Mars is continued in this volume as well. *(Continued on page 2)*

(Continued from page 1)

3. History boxes that continue the history sequence established in the first volume which underscores the continuity of physics over the centuries (and in so doing cements the concepts and gives students an important pathway by which to remember them).

4. The ϕ -field and the A-field are treated as fundamental, which, in light of the fundamental principles introduced in the first volume, simplify the exposition and

give new insights.

5. Radiation is treated as a pinnacle of the understanding of the subject.

6. Building on the impetus-based development of special relativity given in the first volume, the relativistic underpinnings of E&M that give deep insight into the interrelation between the magnetic and electric field are given.

For information on purchasing *Physics for Realists* go to <http://iapweb.org/store/>

Certified Members, Associate Members and Volunteers Contributed to *PFR: E&M*

An accomplished team of the Institute for Advanced Physics's faculty, members and volunteers assisted author **Dr. Anthony Rizzi, IAP Director**, in the creation of *PFR: E&M*. Reviewers and contributors were **IAP faculty Fr. Benedict Ashley, PhD** (St. Louis University, emeritus), **Dr. Murray Daw** (Clemson University), **Dr. Joe Haller** and **Fr. Cliff Hill, PhD**; and three of our **Certified Members Dr. Ken Klenk** (Science Systems Consulting), **Dr. Joe Martin** (Lockheed Martin retired, currently at Equinox Interscience) and **Dr. Dan Welch** (Wofford College). IAP extends a special thanks to

Jeff Hayden, a space communications architect at the **NASA Glenn Research Center** in Cleveland, OH, for the final cover drawing. And **Joe Haller** for his work on the first cover sketch. Youth volunteer **Giuseppe Rizzi** also reviewed many parts of the manuscript for common sense approachableness as well as worked on the index with **IAP Associate Member David Giroir**. IAP's extraordinary team is moving full speed ahead with ground-breaking research on *Physics for Realists: Quantum Mechanics*. Volume three will not disappoint you!



EWTN Live with special guest ***Prof. Anthony Rizzi***
Science and Faith

Wednesday, September 14th 8pm Eastern

View EWTN online: <http://www.ewtn.com>,

Select the "Television" tab at the top and select "Live TV"

Missed the show? Watch on youtube

<http://www.youtube.com/watch?v=m6DYJt-NI1A>

Dr. Daw presents PFR at AAPT Regional Meeting

Dr. Murray Daw, IAP Adjunct Professor and Bowen Professor of Physics at Clemson University, was invited to give a workshop on *Physics for Realists* (PFR) at the Southern Atlantic Coast Section of the **American Association of Physics Teachers** held at **Clayton State University**, Morrow, GA on April 2, 2011. The workshop introduced instructors to a profoundly new textbook for freshman physics (mechanics).

AAPT members learned that PFR presents the fundamental of Newtonian mechanics in a way that taps the student's common sense. Dr. Daw explained how it starts with things we see directly and thereby leads the student to a deep understanding of physics. Dr. Daw has come to see first hand how the resulting pedagogical approach, profoundly unified in principle, makes physics accessible and its beauty evident, while at the same time rigorous.



The key concept to understanding the physics of locomotion, historically and logically, is impetus (the measure of the strength of which is the momentum). The first chapter of PFR introduces the fundamental first principles of physical science, which forms the foundation for the entire book. The participants were intrigued and supportive of the material presented. In one enlightening moment in the talk, Dr. Daw was explaining that impetus is the proximate cause of locomotion, and one participant literally stood up out of his chair and said enthusiastically, "Yes!"

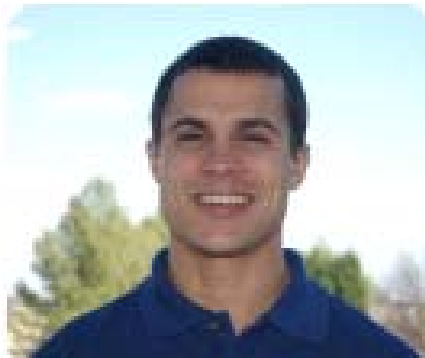
AAPT book review: America's association for physics professors gives high praise to IAP's *Physics for Realists: Mechanics – Modern Physics with a Common Sense Grounding* in its teachers' journal stating

"...Rizzi has done an excellent job and I highly recommend that you experience this text..."

Read more in *The Physics Teacher*, Vol. 47, May 2009.

Anthony DiCarlo, New Associate Member

Anthony DiCarlo earned a BS in Mathematics Secondary Education from Anderson University in Anderson, SC, where he also competed on the wrestling team for four years. During his time in college, he was active at St. Joseph Catholic Church, where he met Dr. Murray Daw and Fr. James Dubrouillet. These men introduced Anthony to *The*



Science Before Science and shared their IAP wisdom with him.

In college, Anthony served as a math tutor at the Anderson Adult Education Center. After graduating in December of 2009, he began teaching math at Carolina High School in Greenville, SC. He is currently teaching Algebra I and coaching wrestling there. Anthony is very thankful for the work and mission of IAP. And, he looks forward to deepening his understanding further through his continued study and work with IAP members on IAP projects.

Science 'To Serve Man:' A Parable from the Twilight Zone

IAP presented **Science 'To Serve Man' A Parable from the Twilight Zone: How a Misunderstanding of Science is Creating a Culture of Death** at the Roman Catholic Home School Association of Louisiana's annual conference on April 2 in Covington. Home school teachers learned from Dr. Rizzi that a proper presentation of science is critical for their students.

Dr. Rizzi, Associate Member David Giroir and other helpers answered questions at the IAP textbook and DVD book table after Dr. Rizzi's presentation.

IAP Associate Member David Giroir talks with parents at IAP book and DVD table



**Kids—Coming soon.....
a physics book for you
from the Institute for
Advanced Physics**

People don't realize that physics is the study of the physical world - including all the things we see around us. It's the first thing we know and it leads us to God. IAP is working on a book for sixth graders and up which will give them the big picture of what physics is and how the physical world reveals God to them. Parents and teachers will profit immensely from walking through this book with their children. There is nothing else like it....see for yourself in the spring of 2012! book idea: Sept. 2011

"IAP is doing science research and education to make science assessable to the common man so that he can think for himself and not have to depend on experts for everything." Dr. Rizzi

The Institute for Advanced Physics is powered by the combined labors, talent and inspiration of **over 80 people!!!** People like **Linde DeAn** who is involved in the final production of IAP CDs and DVDs and **Ralph Stephens**, CPA/ABV, JD, CFF, of Postlethwaite & Netterville, Baton Rouge, LA who has assisted IAP since March 2003. We are most grateful for their accomplishments as invaluable members and volunteers.

Physica ad Dei Gloriam

In the news...

IAP faculty participated in the **New Frontiers in Quantum Foundations** 2011 invitational conference at Clemson University, March 9-11

A plenary talk which Dr. Rizzi was invited to give at the American Maritain Association (Oct 2006) conference was recently published in **Reading the Cosmos: Nature, Science, and Wisdom** edited by G. Butera. The article is titled: *The Grounding and Integration of the Modern Mind and Its Science*

The **University of Chicago** Lumen Christi invited **IAP Associate Faculty Fr. Benedict Ashley** to give a talk in January 2011 about Cardinal Newman's Idea of a University.