Greetings Fellow Physics Teachers:

I must confess that the last few weeks of Summer were a mixture of both mourning and anxiety. The mourning was the result of having my oldest child, my daughter in one of my sections of Physics. Since I am the physics department, she really didn’t have much of a choice. Working with young people in my physics classes has been something I have enjoyed for the last fifteen years. Together each year, my students and I have marched through the familiar topics of: straight line kinematics, vectors, Newton’s Laws, electrostatics and numerous other topics. With humor, labs, and classroom activities I have tried to help my students battle to overcome their misconceptions and gain a better understanding of the world around them.

Things are a little different this year. I find myself holding back just a little, perhaps I am acting more mature. At worst I guess I would have to admit that I have had to grow up at least a little bit. Growing up though, as it turns out, hasn’t been all bad. I haven’t lost my zeal for wonder or my love of play. Every Fall when my requisitions from the previous Spring come in, I feel like it’s Christmas. The past few years I have tried to acquire a new “toy” or two that will help me make a point or two with my students. Many of my students have said, “Being a physics teacher must be pretty cool because you get to play with all sorts of things.”

When they say that I have to admit, “Yeah it is pretty cool.” I think many of you would agree with me—this is a great job. Those of us in education have all touched the future with many of our best students going on to have a career in engineering, medicine or perhaps even in physics. Sadly I know of only two of my former students who have majored in physics. One is a high school teacher, the other works for the Illinois Bureau of Investigations. In the years to come I hope I can improve that number. No doubt I will gain some ideas at Illinois State at the Fall section meeting.

The theme for the Fall meeting is “Recruitment and Retention of Physics Majors.” I have always found our sectional meetings to be a treat. Without fail, I have always gained a new idea to show or share with my students. I hope many of you are able to attend and if you know of a new physics teacher in your area, invite them to come along too.

In closing, it has been an honor and a privilege to serve the ISAAPT as president this past year. To those members who help make this organization the great one it is, I thank you for your patience and insight. Your efforts have been greatly appreciated.

Respectfully,

Gary Wolber
FUTURE ISAAPT MEETINGS

- Fall 2003 – October 10,11 Illinois State University, Normal
- Spring 2004 - University of Illinois, Urbana-Champaign
- Fall 2004 - Bradley University, Peoria
- Spring 2005 - Southern Illinois University, Edwardsville
- Fall 2005 - Riverside Brookfield High School, Riverside

ISAAPT WEB SITE

For the latest information about the ISAAPT and other kindred topics, check the Website: http://isaapt.org. Dave Renneke manages the site and is constantly updating and improving this information source. If you couldn’t make the Spring meeting, check out the particulars via the Internet!

Michael Rolf Receives Outstanding High School Physics Teacher Award

Michael Rolf (left) receives the award for the Outstanding High School Physics Teacher from Diana Roth. (photo courtesy of David Renneke)

NOMINATIONS FOR OUTSTANDING HIGH SCHOOL PHYSICS TEACHER SOUGHT

Each school year the Illinois Section of AAPT is pleased to receive nominations for outstanding high school physics teachers in the state. Fellow teachers and school administrators who are aware of exceptional performance and enthusiastic student response are encouraged to fill out the online nomination form found on the ISAAPT website. The person who is nominated will be notified and asked to fill out the online candidate information form. Please note that the deadline for receiving nominations is December 1, 2003. The teacher who is selected will be notified and presented with the award at the Spring meeting of the Section.

The Outstanding High School Physics Teacher Award for 2002-2003 was presented on April 10, 2003 to Michael Rolf of Downers Grove North High School. Michael graduated from Augustana College in 1971 with a major in physics. He received a M.S. in physics from Northern Illinois University in 1975. He has been teaching physics for 32 years, first at Downers Grove South High School and now at Downers Grove North. Congratulations Michael on a job well done!
The autumn meeting of the ISAAAPT will be held at Illinois State University in Normal on Friday/Saturday, October 10/11. The meeting theme will be “Recruiting and Retaining Physics Majors.” This theme is of an especially timely and pertinent nature. Physics departments nearly everywhere appear to have decreasing enrollments. This is unfortunate, for so often it is from these programs that physicists, engineers, and physics teachers are derived. It is doubly important that physics teachers at all levels work to increase the number of physics majors across the spectrum. The demand for these individuals is growing in our technologically advanced society.

Speakers have been invited to describe the situation, and in some cases, to address the problem. Starting off the Friday afternoon session will be Dr. Michael Neuschatz, Senior Research Associate of the AIP Statistical Service. In his presentation, “Hints from the Enrollment Pipeline on Recruiting and Retaining Physics Majors,” he will present information about historical trends and recent changes, and their implications for improving the recruitment and retention of physics majors in coming years. Banquet keynote speaker Dr. Beverly Hartline, Associate Laboratory Director at Large of Argonne National Laboratory will address the question of increasing physics major enrollment. Her talk is titled, “What’s In It for Them?” Dr. Daniel Holland, NASA Solar System Ambassador at Illinois State University, will speak to the question of university outreach on Saturday morning. He will describe his outreach work with schools in Central Illinois. On Friday afternoon, a panel of physicists and educators will reflect on the problems surrounding the recruitment and retention of physics majors, and will attempt to provide some solutions to the problems. Included in the discussion are panelists Dr. Keith Andrew, EIU; Dr. Curtis Hieggelke, JJC; Dr. Charles Schulz, Knox College; and Dr. Kimberly Shaw, SIU-E; and possibly a representative of the Illinois State Board of Education. Discussion moderator will be Dr. Richard Martin, ISU.

Two workshops will be presented on Friday morning, both running from 9:00 a.m. to noon. Each will provide CPDU’s for participating high school teachers. Julia A Thompson, of the Department of Physics & Astronomy, University of Pittsburgh, and the Department of Physics at SIUE, will present Workshop W1: Cosmic Ray Detection Network; Thomas Kuhn, Midwest Educational Representative, PASCSC Scientific, will present Workshop W2: Simple Experiments in Physics. In addition to workshops, ISU Planetarium director Thomas Willmitch will present “Mars Watch,” a brief update about the planet Mars and its location in the current evening sky. The event will take place at 11:00 a.m. on Friday. In addition to all these scheduled events, there will be a myriad of paper presentations and Take 5’s, as well as the awarding of the Distinguished Service Citation. Complete agenda details, as well as campus maps, housing and meal information, the official call for papers, and much more can be found on the ISAAAPT web site.

Please note that this announcement will be the only notification you will receive concerning the ISAAAPT autumn meeting; there will be no other mailing. Please register on-line today at http://isaapt.org/. If you have any questions, contact meeting coordinator Carl Wenning via e-mail (preferred) at wenning@phy.ilstu.edu or phone at (309) 438-2957.
This program will serve to recognize and promote both high school and undergraduate student research in physics and physics teaching.

High school and undergraduate students who are:
1) currently engaged in physics research, 2) working under the direction of a faculty advisor, 3) officially registered for the ISAAPT meeting which they are attending, and 4) registered competitors in the research symposium are eligible for participation in the awards program. The student(s) should have a substantive understanding of and/or involvement in the conception, methodology, and analysis components of the research. The research project does not have to be complete at the time of presentation.

Begin making your plans now to present or (teachers) have your students present at the spring meeting of the ISAAAPT. Over the past few years this program has been quite successful. Complete details about the Student Research Symposium can be found on the ISAAAPT web site at the following URL: http://helios.augustana.edu/isaapt/res-symp.html.

**PTRA RURAL INSTITUTE RENEWED AT ISU**

Since 2001 Illinois State University has served as one of three original university sites for the AAPT/APS-sponsored rural institute program associated with the national PTRA (Physics Teaching Resource Agent) program. The ISU Regional Rural Center is the first to receive program renewal. For the past three summers regional rural coordinator Carl Wenning has facilitated week-long summer activities in cooperation with the national AAPT office, Illinois and PTRA’s – especially Tom Holbrook from University High School in Normal, and Barney Ricca from Barat College in metropolitan Chicago. Following a two-day visit to the regional site during July, national program director Jim Nelson agreed to a 3-year extension of the Illinois State program.

Teachers of physics and physical science who work in rural school districts and small towns not in a metropolitan areas are eligible to enroll in these summer workshops. Workshops are residential in nature, and participants are paid stipends. Frequently “make and take” materials are included as part of the program. Over the course of three years teachers can earn approximately 120 hours of CPDU’s by attending all sessions. With the renewal of the program, next summer’s workshop will begin again with basic kinematics and dynamics. For details about next summer’s PTRA Rural Institute at Illinois State University, or to be put on a contact list, get in touch with Carl Wenning at wenning@phy.ilstu.edu.

**RESEARCHERS TAKE NOTE!**

The Illinois Section of the American Association of Physics Teachers is pleased to announce an awards program as part of a Student Research Symposium for high school and undergraduate attendees of Illinois Section AAPT spring meetings.

**DISTINGUISHED SERVICE CITATION AWARD WINNER ANNOUNCED**

By unanimous consent, the ISAAAPT Executive Council has agreed to award the 2003 Distinguished Service Citation to Dr. Robert C. Frank. Bob is Professor Emeritus of Physics at Augustana College. After receiving his bachelor’s degree from St. Olaf College where he worked at the campus radio station, he earned a Ph.D. in physics from Wayne State University in Detroit. He then worked on research projects for several years at General Motors. He started teaching physics at Augustana in 1964 where he was heavily involved with teacher and research organizations at the local level. One year he was president of a Quad City teachers group called the Rock Island Scott County Science and Math Teachers. This organization involved many teachers including junior high, middle school, high school and college. In 1981 he was president of the John Deere Chapter of Sigma Xi, the national scientific research organization. He was the director of the Augustana Research Foundation for several years. Bob retired from full time teaching in 1992 but continued teaching part time for a few years after that. Even in retirement, Bob remains very interested in both teaching and research. Congratulations Bob!

**Dr. Robert C. Frank** – 2003 Distinguished Service Citation Recipient
PAPERS AND PRESENTERS AT THE SPRING MEETING AT KNOX COLLEGE

Invited Talks

Looking Back on Four Decades of Physics Research. George W. Smith, Formerly Principal Research Scientist and Director of General Motors Research Laboratories

Nanobiology and Nanophysics. Robert H. Austin Princeton University Biophysics Group of the Advanced Photon Source at Argonne National Laboratory


Contributed Papers

A New Model Course in Quantum Mechanics. Tom Carter, College of Dupage, Glen Ellyn, IL 60134

Physics and Sociology: Neighborhood Racial Segregation. Alexander J. Laurie and Narendra K. Jaggi, Illinois Wesleyan University, Bloomington, IL 61702

MFM Study of Magnetic Domains in Heat-Treated Magnetoelastic Torque Sensors. Jason Wilson, Doug Franklin, and Mark S. Boley, Department of Physics, Western Illinois University, Macomb, IL 61455

Raman Spectral Peak Shifts Across the Superconducting Transition of MgB$_2$. Matthew Ed Tillman and Mark S. Boley, Department of Physics, Western Illinois University, Macomb, IL 61455

The Effects of Chromium Concentration on Heat-Treated Steel Torque Transducer Shafts. Jason T. Orris and Mark S. Boley, Department of Physics, Western Illinois University, Macomb, IL 61455

Using Astronomy to Teach Physics. Lee Carkner, Augustana College, Rock Island, IL 61201

Recent Innovations in Physics Teacher Preparation at Illinois State University. Carl J. Wenning, Illinois State University, Normal, IL 61790-4560

Modeling Electromagnetic Problems Using Finite Element Analysis. James C. Gumbart and James Rabchuk, Western Illinois University, Macomb, IL 61455

Gibbs, Feynman and the Refractive Index. James E. Clark, Northern Illinois University, DeKalb, IL 60115

Static and Flowing Soap Films. Greg Sollenberger and James Rabchuk, Western Illinois University, Macomb, IL 61455

The Effects of Nickel Concentration on Heat-Treated Steel Torque Transducer Shafts. Laurie A. Pichla, Jason T. Orris, and Mark S. Boley, Department of Physics, Western Illinois University, Macomb, IL 61455

The Bridge Between Physics and Sports. Paul Robinson and Lee Suarez, Principia College, Elsah, IL 62028

Pretransitional Light Scattering in Isotropic Liquid Crystals. Jason Reeves, Knox College, Galesburg, IL 61401

Physics of Sailing. Benjamin L. Brown, Principia College, Elsah, IL 62028

Model Equations for Chaotic Plasma Synchronization. Kent Schonert, Epaminondas Rosa, Jr. and George Rutherford, Illinois State University, Normal, IL 61761

Evidence of Dark Cone in Backscattered Light off Turbid Media. Allen Lewis, Rainer Grobe and Qichang Su, Illinois State University, Normal, IL 61790-4560

Wave Theory for Light Scattering in Random Media. Matthew Narter and Sunish Menon, Illinois State University, Normal, IL 61790-4560

Fractional Cycloatom States. John Henderson, Rainer Grobe and Qichang Su, Illinois State University, Normal, IL 61790-4560

Ionization and Stabilization of Atoms in Magnetic Fields. Travis Faust, Rainer Grobe and Qichang Su, Illinois State University, Normal, IL 61790-4560

Laser Propagation in Milk. Michael Bell, Rainer Grobe and Qichang Su, Illinois State University, Normal, IL 61790-4560

Panel Discussion

Physics Outreach and Alliance

Moderator: Carl Wenning, Department of Physics, Illinois State University
- Ann Brandon, Physics Teacher, Joliet West High School, Joliet
- Duane Ingram, Professor of Physics, Rock Valley College, Rockford
- James Rabchuk, Associate Professor of Physics, Western Illinois University, Macomb
- Kimberly Shaw, Assistant Professor of Physics, Southern Illinois University at Edwardsville
- Carl Wenning, Coordinator Physics Teacher Education Sequence, ISU

**Workshops**


*Junk Box Wars*, Christopher LaRoche, Sherrard High School, Sherrard, IL. Room D103.

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**CALL FOR NOMINATIONS**

The call for nominations for ISAAPT's Distinguished Service Citation has been extended until March 1. The distinguished service citation recognizes outstanding contributions to the field of physics teaching in the state of Illinois. Special recognition is given in the areas of:

- leadership of colleagues and students through physics teaching
- professional contributions to section activities through contributed papers, workshop presentation, committee service, or elective office
- distinguished service at the teacher's home institution.

Association members are encouraged to nominate those who they feel are worthy of recognition. For complete details and information about nominating a colleague, visit the ISAAPT web site at the following URL: [http://helios.augustana.edu/isaapt/citation.html](http://helios.augustana.edu/isaapt/citation.html)

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**CPDU'S AVAILABLE AT FALL ISAAPT WORKSHOPS**

Continuing Professional Development Units (CPDU's) will be available to in-service high school physics teachers who attend and participate in the workshops at this fall's ISAAPT meeting at Illinois State. Carl Wenning of Illinois State University has registered ISAAPT with the Illinois State Board of Education as an official service provider.

**ISAAPT GUIDEBOOK PROGRAM**

By action of the Executive Council on April 15, 2000, the ISAAPT Guidebook Program was renewed until the spring of 2003, at which time the program will again be reviewed. Physics teacher education program coordinators may request an AAPT guidebook for qualifying students. Students eligible to receive a guidebook under this program are those who are:

- enrolled in a physics or science "methods" course,
- soon to be engaged in student teaching,
- physics teacher education majors, and
- enrolled in a post-secondary institution within the ISAAPT zone.

The ISAAPT Guidebook Program will provide one resource guidebook from the AAPT to each qualifying student as requested. The guidebook selection is currently restricted to the following guidebooks: *String and Sticky Tape Experiments, A Potpourri of Physics Teaching Ideas,* and *A Demonstration Handbook for Physics*. Physics Teacher Education program coordinators may request one guidebook for each of their students who qualify; students may not request books themselves. Program coordinators who wish for their qualifying students to benefit from this program should contact the ISAAPT Secretary to place requests.

Also at the April 15, 2000, meeting, a task force of three individuals (Diana Roth <droth@springfield.k12.il.us>, Ann Brandon <lbrandon@aol.com> and Debby Lojkutz <Lojkutz@aol.com>) was formed to review the list of available guidebooks, and to review and make recommendations for changes in the listing of available books. If you would like to make recommendations, please contact any of the three named individuals.
FALL 2003-SUMMER 2004 TYC & HS PHYSICS WORKSHOPS
Curtis Hieggelke
Joliet Junior College
curth@jjc.edu

The Physics Workshop for the Twenty-First Century Project will hold four physics workshops for two-year college (TYC) and high school (HS) physics faculty. The activities of this project are supported in part by a grant (DUE #0101589) from the Division of Undergraduate Education through the Advanced Technological Education (ATE) Program of the National Science Foundation.

This effort is part of a three-year national, ATE-focused, workshop program that is led and administered by Joliet Junior College (IL) and Lee College (TX). It involves a modification, expansion, and continuation of several previous TYC physics workshop projects, which started in 1991. Previous efforts resulted in more than 50 workshops at 20 different TYC sites in 13 states. Past workshops have served over 1,000 participants from 359 TYCs and HSs in 48 states and US territories.

The goal of this project is to help high school and two-year college students develop a stronger understanding of science, with an emphasis on physics and its applications in industry. This program addresses these issues by providing a series of faculty development workshops for high school and two-year college teachers who teach the core physics courses. These workshops are designed to acquaint the participants with the integration and implementation of emerging technology and active learning strategies. These workshops provide extensive and intensive hands-on, collaborative experiences for participants with workshop materials that make it easy for participants to implement the workshop ideas, adopt or adapt them, and acquire necessary skills to use them effectively in their classroom.

This project has scheduled the following workshops for two-year college and high school physics teachers:

**Physics Workshops in the 21st Century**
**Fall 2003-Summer 2004 Schedule**

<table>
<thead>
<tr>
<th>Date</th>
<th>Workshop Description</th>
<th>Location</th>
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<tr>
<td>November 6-8, 2003</td>
<td>LabView and LabPro Workshop at Mt. San Antonio College, Walnut, CA (near Los Angeles)</td>
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<tr>
<td>February 19-21, 2004</td>
<td>Modeling and Research-Based Problem Solving Workshop at Miami-Dade Community College, Miami, FL</td>
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<tr>
<td>April 22-24, 2004</td>
<td>Microcomputer-Based Lab (MBL) Workshop at Estrella Mountain Community College, Avondale, AZ (near Phoenix)</td>
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<tr>
<td>June 24-26, 2004</td>
<td>Project-Based Physics at Lee College, Baytown, TX (near Houston)</td>
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Updates and application forms available at http://tycphysics.org

There are no fees or costs directly associated with participation during these workshops due to the support of the National Science Foundation, Joliet Junior College, and Lee College. Participants will be provided a room (shared with another participant) for Wednesday through Saturday evenings at a nearby motel. Individual rooms will be available at an extra cost to the participants. Meals will also be provided during the workshop. Participants will be supplied with the materials needed for each workshop. This includes some background materials prior to the workshops as well as a substantial amount of materials for use during and after the workshops.

Each workshop will be led by TYC and/or HS physics teachers and by several other physics educators who are experts in these fields and have played (and continue to play) a major role in the development of these ideas and materials. These workshops will provide more than 33 hours of scheduled activities over three days, most of which will be spent doing hands-on activities in two or three hour work sessions. Workshop sessions start on Thursday, Friday, and Saturday at 8:30 AM. Workshop sessions end each day at approximately 9:30 PM except for Saturday when it is scheduled to end at approximately 4:00 PM.

Travel costs to and from the workshop are to be provided by the participants’ TYC, if he or she is a TYC faculty member. There are limited travel funds available for HS physics faculty from the project; otherwise, the HS participant’s school district is expected to provide travel funds. The workshop host
institutions will attempt to provide scheduled transportation to and from the nearest airport as well as between the motel and the host institution.

There are no stipends for attending the workshops. However, workshop participants may receive support of up to $150 for related efforts and contributions completed and submitted to the project office following the workshop. There will also be a limited number of special project stipends available to participants for more extensive projects.

The objectives of these workshops are to provide TYC and HS teachers who serve students involved in advanced technology programs with:

- knowledge of and solid experience with recent major advances in the applications of microcomputers, use of web-based tools, and curriculum developments in physics
- a means to identify the appropriateness and role of these workshop ideas in meeting the needs of TYCs and HSs, and to see models of how it has been done at other TYCs and HSs
- an opportunity to develop, adapt, share, and incorporate suitable materials into TYC and HS physics courses and programs
- a chance to enhance their understanding and appreciation of the needs of students, educational programs, and workforce needs in areas dealing with technology

All instructors currently teaching full-time at a recognized two-year college or high school in the United States are eligible for this program if part of their teaching load involves physics. Faculty who teach significant numbers of women, minorities, and the physically disabled will be given priority within each of these levels. This program is open to all qualified individuals regardless of race, color, religion, sex, age, national origin, or educationally unrelated disabilities. Participants will be selected from the pool of qualified applicants based on the following criteria —

- teams of TYC and HS faculty who teach physics or physics-related courses serving technology or technician programs
- individuals who teach physics or physics-related courses serving technology or technician programs
- teams of TYC and HS faculty who teach in somewhat limited support of technology or technician programs
- individuals who teach in somewhat limited support of technology or technician programs.

Please contact Curtis J. Hieggelke (815-280-2371 or curth@jjc.edu) about any questions or for more information.

**JOURNAL OF PHYSICS TEACHER EDUCATION ONLINE**

Journal of Physics Teacher Education Online is dedicated to investigating and documenting significant issues and challenges in the education of physics teacher candidates. With a focus on the scholarship of teaching, the journal seeks to generate discussion and promulgate sustainable, long-term changes in educational research, policy and practice. Journal articles will foster deep, significant, lasting learning for physics teacher educators and improve their ability to develop teacher candidates' and inservice teachers' understanding, skills, and dispositions.

Physics teacher educators, often only one individual working within a department of physics to prepare future teachers, are frequently isolated from their peers due to a lack of a medium of exchange. As a result, those who engage in innovative acts of teaching do not have many opportunities to share their work, and to build upon the work of others. Without an opportunity to share with like-minded peers, teacher educators are likely to remain isolated, unable to benefit from or advance the work of the physics teacher education on a broader basis.

Fortunately, renewed public interest in education, the development of teacher preparation standards, and some inspiring models from physics teacher education programs around the country provide hope that the time is right for change.

The work of educating future physics teachers often involves significant shifts in thought and practice. For physics teacher education faculty, physics teacher preparation is a private act, limited to the teacher and students. Such practice is rarely evaluated by professional peers, again due to a lack of a forum to exchange ideas and share procedures. The purpose of *Journal of Physics Teacher Education Online* is to establish a forum through which the scholarship of teaching and learning can be exchanged widely and built upon. The hope is to support the development of new models of physics teacher education that foster deep and lasting understanding, while underlining the character of teaching itself as a scholarly endeavor worthy of recognition, support, and reward.

JPTEO is published online by the Illinois State University Physics Department. It may be accessed through the JPTEO web page at http://www.phy.ilstu.edu/jpteo/