

Physics Tempo

The Newsletter of The St. Louis Area Physics Teachers
an affiliate of the American Association of Physics Teachers
January 1993

Vol. 3 No. 3



Notes and News from The November 1992 Meeting *By Paul Discher*

A regular meeting of the St. Louis Area Physics Teachers was held at John Burroughs School Saturday November 7, 1992, 8:30 a.m. and hosted by Bill Brinkhorst. Twenty-five teachers were present, and a business meeting preceded the morning's events which consisted of classroom demonstrations in "Motion".

Frank Cange brought the meeting to order, and called our attention to the screening of a motion picture based on Stephen Hawking's book with the same name, "A Brief History of Time". The film, having a limited engagement in St. Louis, will be at the Tivoli theater the week of November 6, 1992. Frank indicated he would investigate the scheduling of encore performances of this interesting production and provide that information when it is available. Frank announced that the Physics Cinema Classics would be at this meeting for members to examine. Physics Cinema Classics is a collection of the classical physics films and film loop 'clips' from the PSSC Physics era on random access video CD. Ztech is the distributor, and makes available a Macintosh HyperCard stack for driving the CD player with database. A teachers guide is forthcoming. Check the AAPT Announcer for more information on Ztech.

Previously, we discussed the formal archiving of demonstrations and projects. In response to this idea, Jim Small volunteered to become technical librarian for the St. Louis Area Physics Teachers. As technical librarian, Jim will be archiving documentation on various demonstrations and experiments gathered and shown by the membership at meetings. These materials will be available to teachers for photocopying. Donate your materials directly to Jim Small, or contact him for access.

Rex Rice reminded all attendees of the PTR-Plus "Electrostatics Workshop" scheduled for Saturday December 5, 1992. "This will not be a regular meeting but a 6-hour workshop." Cost of \$10.00 per person for materials and supplies may be paid in advance or at the door. This workshop will be held at the new Gateway Institute of Technology.

Dave Bross made his presentation recapping the AAPT Missouri Section Meeting on October 24, 1992. This all day meeting was hosted by University of Missouri Rolla - Physics Department and

about 50 members were present. The Pasco Vibrating String apparatus was demonstrated at this meeting. David Lay, Parkway North High School, made a presentation on the Physics Olympiad. Dr. Gary Burton, UMR-Chemistry department demonstrated an excellent Macintosh program on the buoyant effect. The special speaker was Dr. John Rigdon, and he talked on the concept of



Dr. Zurheide

natural science standards and the potential affects 'standards' have on teaching science in the nation. His premise that "less is more", opened up much discussion among the teachers here as well as there. Dave also commented on Dr. Larry Banks talk on the Missouri Alliance and the proposed Certification Standards for Science Teaching. Much discussion also followed. Dave concluded by encouraging all to attend the spring meeting of the AAPT Missouri Section, April 24, 1993,

Kansas City Missouri. He also reminded us of the St. Louis Area Physics Teachers role in hosting the AAPT Missouri Section meeting, Fall 1993. A site and date for this event has not yet been set. The intent will be to combine this meeting with a regular meeting of the St. Louis Area Physics Teachers and possibly a classroom demonstration competition. Dave is seeking ideas and volunteers. Contact Dave Bross directly: home 639-6409, Parkway West High School : 391-4730 .



Alexander Peterson

Our guest speaker was **Alexander Peterson**, a retired businessman endeavoring to launch an new organization, The Universal Science Institute. Mr. Peterson detailed his endeavors in developing an outreach program for high schools, similar to those of the Science Center's elementary programs. His programs and concept

for his organization will present exciting new information on state of the art and little known developments in Physics and Engineering. Working alone and for no cost up to this point, Mr. Peterson is now intending to assess a fee for access to his programs. In addition, Mr. Peterson is looking for skilled people to join his venture. The institute is also now planning a motivational science seminar for the St. Louis area.

A special Invitation: Teachers, Students, Engineers, and Parents.

The Universal Science Institute needs you to assist in a science seminar for the St. Louis Area. The 7th through 12th grade students participating in this program will exhibit projects, hear speakers, attend workshops, and witness demonstrations of new discoveries in science and engineering. Booths with educational materials will be available for teachers. The date and location for this 3-day program has not yet been set.

For more information contact Alexander Peterson,
Universal Science Institute, 11200 Gravius-C St. Louis,
Missouri 63126-3622 (314)-843-8915

Jerry Taylor started this portion of our meeting with his home built devices illustrating friction and another showing centripetal force. Bill Brinkhorst showed his home built "shoot the monkey" experiment in which a steel ball was projected to intersect with a falling target....across the room! Jim Small had still another unique demonstration of centripetal force. A number of other presentations were made by other teachers.

A copy of the meeting video, or any other meeting video, please state in your request which month's tape you would like, and send a check in the amount of \$8.00 for each tape that you wish (Payable to Paul L. Discher) to: **Physics Tempo Editor: Paul Discher, Washington University Electrical Engineering \ Campus Box 1127, St. Louis, Missouri 63130-4899.**

News from the PTRA-Plus "Electrostatics Workshop" December 5, 1992

By Paul Discher

Many members of the St. Louis Area Physics Teachers participated in the second PTRA Plus Workshop Saturday, December 5, 1993. This program was hosted by Rex & Debbie Rice and Gene Fuchs at the Gateway Institute of Technology, a newly renovated St. Louis Public Schools - Magnet School. The main building, located at 5101 McRee, has a commanding view of the Manchester industrial corridor as well as the St. Louis Science Center. Twenty-seven teachers were present at this program and no regular business meeting was scheduled.

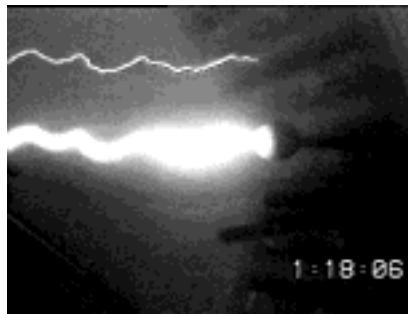


PTRA Plus Program

At the American Association of Physics Teachers Summer Meetings the PTRA Plus Program began the first of three training sessions this year for new and veteran PTRAs. Attending this meeting from St. Louis, were Rex & Debbie Rice, Gene Fuchs, and Richard Garner.



PTRA, which stands for *Physics Teaching Resource Agents*, originated in 1985 and has been reinstated this summer as PTRA-Plus. Participants in this new program were trained to give workshops in five areas; Labs, Demonstrations, Motion, Static Electricity and DC Circuits. PTRAs were committed to perform 108 clock hours of workshops over the next three years within their own communities. Debbie, Rex, and Gene are fulfilling this requirement by hosting the PTRA-Plus programs in St. Louis. The "Electrostatics Workshop" is one of 4 that they will complete in the next months.



Attendees of the PTRA-Plus December 1992 workshop at the Gateway Institute of Technology, completed a number of specialized electrostatic demonstration projects. These projects, using commonly available materials such as styrofoam and styrofoam

cups, plastic drinking straws, aluminum foil, and other countless items were used to study the characteristics of electrostatic charges. A simple electroscope was constructed using an aluminum soft drink can and foil. All of the copyrighted materials necessary to complete these investigative electrostatic experiments were provided to the attendees. A number of other hands on demonstration items were available including a very large van-de-graff generator.

Next Meeting — January 1993

"Second Semester Lab Sharing"

Date: Saturday January 23, 1993

Time: 8:30 a.m.

Place: Valley Park Senior High School

Host: Jim Small

Submitted By Jim Small

The next regular meeting of the St. Louis Area Physics Teachers will be held on Saturday, January 23, 1993 at Valley Park High School beginning at 8:30 am. Jim Small will be your host and there will be a business meeting before the "lab sharing session".

This "second semester lab sharing session" is intended for topics traditionally covered in the second semester of general physics. The lab topics we are seeking to cover are: heat, sound, electricity-magnetism, optics, or any other labs we might not have seen up to this point. Please be aware that we are sharing not comparing, so don't hesitate to bring your ideas forward. The more ideas, the better, even if they are just tips to make a lab more successful. By bringing 25 copies of your share materials we will be able to minimize any delays of making copies at the meeting. However, copy machines will be available if needed.

The facility at Valley Park is spacious, so if you have a demo that takes up a lot of room, this would be a good time to bring it. The Physics Teachers Archive Binders will also be available if you have any material to be added or copied from the binder. Tim Siebe (genius cartoonist/physics student) may also be available if you have any ideas for physics cartoons or diagrams. I also need to decorate my room to get rid of this sterile look, so if you have any good posters, etc. to donate, feel free to bring them.

Available equipment includes plenty of tables, a variety of power supplies, two strobe lights, six mobile IBM-compatible computers equipped with Vernier MPLI boards (limited number of probes), one mobile Apple IIe computer, many Apple IIe computers in a drop-in lab down the hall, Macintosh LC computers in the lab across the hall, a mobile Macintosh II computer interfaced with a

videodisk player, 2 more videodisk players, and several VCR's and TV's. I also have a fairly strong laser from a laser printer which may be used for demonstrations. Extensive sound equipment (CD players, amps, mixers, large speakers, and some MIDI equipment such as drum machines) is also available from my home if needed. An LCD computer screen that uses an overhead projector is also available to show any IBM or MAC programs which the group should see. Mathcad, Scientific Word, T-cubed, and most of the Vernier software are available for viewing from Valley Park sources. Please contact Jim Small at 225-2718 if you have any questions or have ideas for lab set-ups which require equipment from the facility. Directions follow, see you there!!

Valley Park High School is located about .925 miles North of highway 44 on Highway 141 (Meramec Station Road). From West County, take 141 south past Big Bend Road about 1 mile. At the bottom of the large hill, turn right between the gas station and the blue Valley Park sign on Plainview road. The next left is the entrance to the parking lot. My room (201) overlooks the parking lot from the new addition on the North side of the campus. From most other directions, take Highway 44 west to the Valley Park exit (highway 141) and turn North. Just past the third stoplight, turn left onto Plainview, then left into the parking lot. (Plainview is right at the end of the new section of 141, which is two lanes on the North side and 4 lanes on the South.)

There will be no regular meeting of the St. Louis Area Physics Teachers in February 1993. Instead our membership proudly presents:

PTRA Plus Workshop

“Teaching About Electric Circuits”

Date: Saturday February 13, 1992

Time: 8:30 a.m. to 2:30 p.m.

Place: Clayton High School

Host: Gene Fuchs, Debbie Rice, and Rex Rice

Registration Cost: \$15.00

The third of this year's Physics Teaching Resource Agents-Plus Workshops will be presented at Clayton High School by Missouri PTRAs Gene Fuchs, Debbie Rice, and Rex Rice. The topic of this workshop is Teaching About Electric Circuits. The workshop will be held on Saturday, February 13, 1993 from 8:30 a.m. - 2:30 p.m. At Clayton Senior High School.

This workshop will include activities on electric field mapping, batteries and bulbs, resistors, diodes and light emitting diodes, transistors, capacitors, as well as an activity using a 555 timer integrated circuit. All circuits will be constructed on solderless breadboards. Middle school/junior high teachers are encouraged to participate as well. We plan to include other activities which are aimed at pre-high school students if there is a demand for such.

There will be a \$15.00 charge for this workshop to cover the cost of workshop supplies, the workshop manual, and a site license for the copyrighted materials provided by the AAPT. See the flyer enclosed in this issue of *The Tempo* for further details about the

workshop and the registration form. Please feel free to photocopy the flyer for other teachers who might wish to attend this workshop. If you have questions about the workshop, please call Debbie or Rex Rice at (314) 862-2845.

Anyone who would like to participate in the workshop who is a teacher in the city of St. Louis should contact Florence Gillespie at State and Federal Programs at Raymond Ave. Ms. Gillespie has agreed to pay fees for city teachers to attend this workshop. We suggest that other teachers inquire about having fees paid with Eisenhower Funds from their respective districts.

St. Louis Area Physics Teachers 1993 Activity Calendar

January 1993 Meeting

“2nd Semester Laboratory Experiment Sharing”

Date: Saturday, January 23, 1993

Time: 8:30 am

Place: Valley Park High School

Host: Jim Small

February 1993 Meeting

“DC Circuits”

Date: Saturday, February 13, 1993

Time: 8:30 am

Place: Clayton High School

Host: Rex and Debbie Rice

March 1993 Meeting

“Lasers and Optics”

Date: Saturday, March 20, 1993

Time: 8:30 am

Place: SIU-Edwardsville

Host: Dr. Fred Zurheide

April 1993 Meeting — April 17, 1993

“Topics in Nuclear & Modern Physics”

Date: Saturday, April 17, 1993

Time: 8:30 am

Place: Lindbergh High School

Host: Gail Haynes and Joan Biela

May 1993 Meeting

“Using Computers in Teaching High School Physics”

Date: Saturday, May 8, 1993

Time: 8:30 am

Place: Laffayette High School

Host: n/a

Speaker: Rudy Reyna, Southwestern Bell Telephone

7th Annual St. Louis University Physics Contest - April 17, 1993

The 7th annual St. Louis University Physics Contest will be held on April 17, 1993 at the campus of St. Louis University. This year as before students from all over St. Louis and surrounding areas will compete for team and individual awards in the Annual St. Louis University Physics Contest. Each student will complete a 2-hour multiple choice test. Calculators will be allowed and there is no

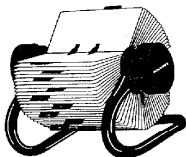
limit on numbers of students entering from each school. Raw test scores will rank students for prizes as follows: Top 4 students Cash Prize. Top 30 students certificate of recognition. Top 3-schools certificate of recognition. For more information contact Dr. Larry Stacey, St. Louis University Physics Dept, 658-2525.

St. Louis Area Physics Teachers to elect new officers in March 1993.

The St. Louis Area Physics Teachers will be holding nominations and elections for new officers in the March 1993 Meeting, which will be held on the campus of SIU-Edwardsville. We will be announcing this again in the Mach newsletter, so keep your nominations in mind and plan to attend this important meeting.

The Physics Teachers Rolodex

Back again is the Physics Teachers Rolodex the place where you find the places to get the things that you really didn't know you needed.



Sun Remarketing
PO Box 4059
Logan Utah, 84323-4059
1-800-821-3221

Sun Remarketing buys and sells new and used refurbished computers including Macintosh, Apple II, and IBM. 30-day money back with 90-day parts and labor on all purchases. Sun operates a 900 number tech support line for \$2.00/minute. Ask for their catalog.

Daktech
4025 9th Ave SW
Fargo, North Dakota 58103
1-800-325-3238

Daktech is a reseller of genuine IBM computer replacement parts tested and warranted for repairs or upgrades. Ask for their catalog.

Maya 2.0
Bridge Street Marketplace
BOX 1239
Waitsfield, Vermont 05673

Maya buys and sells used Macintosh hardware only. There "Info-log" (catalog) is written in plain language and explains many terms and functions of complex equipment, software, and networking equipment. Ask for their catalog.

Depot America
Monmouth Shores Corporate Park
1340 Campus Parkway
Neptune, New Jersey 07753
908-919-0209

Depot America specialized in the repair and refurbishment of dot-matrix printer print heads. They will rebuild and warranty a print head for an Apple ImageWriter I for \$40.00. This beats replacement cost of \$165.00 from Apple. Ask for their new price list, they do laser printers, and entire printer repairs too!!

Physics Tempo

First Class Mail

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Editorial and Subscriptions information:

Physics Tempo Editor: Paul Discher
Washington University-Electrical Engineering
Campus Box 1127
St. Louis, Missouri 63130-4899