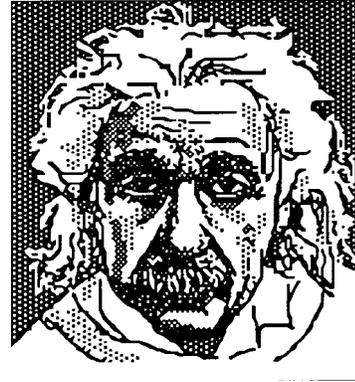


# The Illinois Physics Teacher



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**Spring 2018 Meeting  
Illinois Section of the AAPT  
April 27-28, 2017  
Southern Illinois University –  
Edwardsville,  
Edwardsville, IL**

The Spring meeting of ISAAPT, themed **“Biophysics and Its Impact on Teaching”**, will be held at Southern Illinois University – Edwardsville, Edwardsville, IL.

Invited presentations are –

1. **“Reinventing Introductory Physics for Future Biologists”** on Friday at 2:45 pm by [Wolfgang Losert](#), Professor of Physics and Associate Dean, Director, Partnership for Integrative Cancer Research, College of Computer, Mathematical, and Natural Sciences at University of Maryland.
2. **“Integrating Physics and Physiology for Premedical Students at Weill Cornell Medicine- Qatar”** on Friday at 5:15 pm by [Mohammad Yousef](#), Associate Professor of Physics, Weill Cornell Medicine - Qatar.
3. **“Guided Cell Migration – A Dynamical Systems Perspective”** on Friday at 7:30 pm by [Wolfgang Losert](#), Professor of Physics and Associate Dean, Director, Partnership for

Integrative Cancer Research, College of Computer, Mathematical, and Natural Sciences at University of Maryland.

4. **“A perspective on biophysics courses, past, present, and future”** on Saturday at 9:45 am by [Juan Rodriguez](#), Professor of Physics, St. Louis College of Pharmacy.

Workshops on the following two topics will be offered between 10 am – noon on Friday and repeated between 2 – 4 pm on Saturday.

**W1. “IOLab – a multi-sensor device for K1-College”** by [Morten Lundsgaard](#), Ph. D. of University of Illinois, Urbana-Champaign.

The IOLab is a wireless data acquisition system of similar size and weight as a graphing calculator, and thus highly portable. It contains more than twenty sensors or inputs, including a 3D accelerometer, a 3D magnetometer, a 3D gyroscope, wheels which record position, velocity, and acceleration, a force probe, and both analog and digital inputs. Data can be analyzed in the IOLab software itself, or can be exported to a comma separated value file for later analysis.

In the workshop, the participants will first complete some the open-ended labs that we are currently introducing in the introductory physics courses at the University of Illinois at Urbana-Champaign. Next, participants can explore the many features of the IOLab at various stations including a two-wire ECG-measurement!

Participants will get access to an online course that contains prelab and lab ideas for both high school and college and be introduced to how students can share their measurements with each other and with their teacher.

To make the IOLab experience more authentic, participants should bring their own computer, pc or mac, to the workshop. For more information on the IOLab, see the [IOLab website](#).

**W2. "Teaching and Assessing Problem-solving for the 21st Century"** by Eddie Ackad, [Foster Learning, LLC](#).

Someone once noted that homework is a chance for the students to learn bad habits when the teacher is not looking. Nowhere is that more true than today's electronic homework systems which are only a Google search away from the answer which by-passes any learning. PathPlan is a tablet-based tool that explicitly teaches problem solving and physics concepts as homework. PathPlan uses an algorithmic approach that emphasizes understanding and process, giving the students a positive homework experience. In this session, you will work PathPlan problems and exercises and we will explain what makes it tick. Bring your tablet.

Please consider attending this meeting to learn more about physics and discover new tools and techniques for teaching physics. Share your experiences – contribute presentations and Take Fives; and meet old and new friends.

Registration information and deadlines –

- [Registration is open](#). After April 20, the registration fee for faculty will be increased by \$5.
- Lunch on Saturday, April 28 is available for \$15.
- The cost for the banquet on Friday, April 27 is \$25. The deadline for banquet reservations is Friday, April 20.

For more up-to-date information please visit the [meeting website](#).

## Message from the President

Greetings fellow members of ISAAPT!

As I have been honored to serve as president of our organization for this year, let me introduce myself. I have been a faculty member in the Department of Physics and Astronomy at Knox College since 1981, and regularly attending ISAAPT conferences since that time. I previously served as president in 2001. I earned my Ph.D. at the University of Illinois and, since my research area is molecular biophysics, I am particularly looking forward to this spring's ISAAPT meeting being organized by Tom Foster at SIU-Edwardsville with the topic "Biophysics and its impact on Teaching". I have never failed to enjoy each ISAAPT conference for the interesting invited speakers, the submitted presentations, and the informal conversations I have with my fellow physics teachers. I always come away energized and with new ideas for ways to improve the experience of my students. Interdisciplinarity is growing in importance in the sciences, so I hope many of you will take the opportunity to join me in Edwardsville on April 27-28!

Cheers, Chuck

*-Chuck Schulz, President, ISAAPT.*

## AAPT ~ Highlights of the 2018 Winter Meeting 2018 ~ San Diego, CA

In case you were not able to attend, here are some of the highlights from my AAPT Winter Meeting 2018 experience held in beautiful San Diego, CA January 6th through the 9th. The meeting hotel was the rather unique San Diego Town and Country. On my cab ride from the airport, I was given a brief history of the Mission Valley San Diego area, including learning that the historic Town and Country hotel was one of the first hotels built along this "Hotel Circle" drive. Since 2015, the charming landmark hotel has been receiving over \$75M in renovations and updates. Living in Chicago, it was different to experience

an open-air hotel spread over almost 45 acres of walkable, usable space. The rooms were separate from the convention center meeting space, so every morning the meeting participants had the experience of walking along the palm trees and rose bushes that lined the walkways throughout the beautiful hotel grounds. Fun fact: believe it or not, most of the palm trees seen in southern California are not native to the area. Originally introduced by Franciscan missionaries in the late 1800s, the palm tree craze did not take off until the turn of the twentieth century when affluent Californians imported the fruitless, ornamental, grass-like trees.

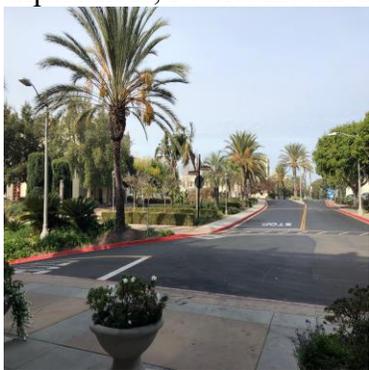


The large exhibit hall opened on the Saturday, the first day of the conference. Big-named vendors from Arbor Scientific, Pearson Education, Pasco Scientific, Vernier Technology all had booths equipped with demonstrations, toys, and the latest-and-greatest products. One thing that I loved seeing was the awe and wonder that struck so many of the conference participants as they picked up and played with some of the equipment brought by the vendors. The current theme seems to be wireless and Bluetooth everything, with seamless integration between the laboratory components and classroom/lecture material. I had always wondered why a publishing company did not team up with a laboratory equipment/software company for a succinct and compact physics experience. It seems that both

the Pasco and Vernier vendors had that exact physics suite to advertise: interactive lectures and post-laboratory exercises are embedded within the laboratory experience so that the user sees both the theoretical calculations and the experiment play out in front of them in real time. I personally think that it would be easy to do with mechanics and the tangible curriculum in electricity & magnetism (like circuits) and I remain interested to see how applicable this approach will be in the modern physics and higher-level topics. If you are using this already in your classrooms, I would love to know how it's working! In addition to the exhibit hall booths, most vendors also offered several walk-in (no pre-registration needed) workshops over the meeting weekend to offer structured, hands-on demonstrations of their new products. I heard those commercial workshops were well attended.

While bouncing around between sessions, I did have the opportunity to attend a couple workshops at the University of San Diego. The meeting provided transportation to and from the University. My favorite workshop I attended was on Saturday morning with Dwain Desbien and Tom O'Khuma, "Incorporating GlowScript in the Introductory Physics Classroom", where they provided a tutorial on using GlowScript to integrate a computational modeling component to my introductory classes. When I was in my own undergraduate and graduate education, one thing I found very discontinuous was the leap from what I would learn the solvable problems from my textbook, lecture, and homework assignments to the complex open-ended questions of my higher level courses and my own research in graduate school. Incorporating just one or two small projects early on in our students' education may be the needed bridge between the two. These computational projects could serve to help students better visualize problems and the code-writing aspect helps them ask better questions and give better instructions. GlowScript runs within a web browser, and allows users to store (and easily share) their programs within the cloud for free. Think about having a computational environment without

worrying about the minute details of compilers and libraries... all of that is handled behind the scenes. Additionally, the visual Python language creates navigable three-dimensional shapes in just one line of easy-to-learn code. Within the workshop, for example, in just a couple of hours (and with some guidance) I was able to create the framework for visualizing a mass spectrometer with editable attributes like mass, charge, accelerating potential, and magnetic field strength. Although it seems like there would be a lot of front-end work incorporating a new GlowScript project for one of my classes, I feel that the learning experience (for both my students and myself!) would be worth it. Additionally, I can see how, from year to year, one project motivating and facilitating more. I'm interested in spending some time this summer working with GlowScript; if any of you have any suggestions or comments or could offer any insight through your own experiences, I welcome the discussion!



Before leaving the Winter Meeting, I had the opportunity to the DIII-D Tokamak Fusion Facility, operated by General Atomics since the late 1980's through the Department of Energy. The meeting provided bus transportation, and I traveled there with friend and College of DuPage colleague, Rumiana Nikolova. Both of us have worked at National laboratories before (she at Argonne and I finished my Ph.D. work at Fermilab) and we were surprised at how similar all of the laboratories really are! The DIII-D facility has been operated by General Atomics as a true international user facility working with over six hundred users from 106 institutions make up a community from Ph.D. students finishing their theses on fusion energy to

contractors working for the Department of Energy. Thinking about fusion energy as a source of renewable energy for the future, we learned from our Ph.D. student tour guide that that for a fusion reactor like DIII-D, just 1 kilogram of tritium and 1 kilogram of deuterium would last for a full day supplying a power output of 500 MW. Everyone who spoke to us from the fusion facility was so very kind and excited about the work they are doing. What a fun experience!



Attending the National meetings is really an incredible opportunity to learn, research, and network. If at all possible, I would like to encourage everyone to attend at least one of the national meetings each year (the next one is in late July in Washington, D.C.). It's so very easy for all of us to continue lock-step from one academic year to the next. It really is an eye-opening and enlightening experience to hear how colleagues from around the country view and solve problems similar to your own. I can definitely guarantee that no matter which days, workshops, or sessions you chose to attend, you will definitely leave the meeting refreshed and enthusiastic to try new techniques and approaches to the profession we all love so much.

- *Jennifer Gimmell, Illinois Section representative to AAPT.*

*Jennifer Gimmell is a Physics Teacher at Benet Academy and an Adjunct Faculty member of Physics at the College of DuPage.*

### Future ISAAPT Meetings

- Spring 2018: Apr 27 – 28, Southern Illinois University, Edwardsville, IL

### Chicago section meetings

- Spring 2018: Apr 21, DePaul University, Chicago, IL

More information:

<https://sites.google.com/site/chicagoaapt/>

### Future national AAPT meetings

- 2018 Summer Meeting, July 28-August 1 (Washington, DC)
- 2019 Winter Meeting, January 12-15 (Houston, Texas)
- 2019 Summer Meeting, July 20-24 (Provo, Utah)

More information:

<http://www.aapt.org/Conferences/meetings.cfm>

### APS Prairie section meeting

- Fall 2018 – to be announced

More information:

<http://www.aps.org/units/psaps/index.cfm>

### AAPT NEWS eNNOUNCER

<http://www.aapt.org/aboutaapt/ennouncer/index.cfm>

### ISAAPT membership listserv

To subscribe, see the instructions on this [webpage](#).

### Connect with ISAAPT

ISAAPT is now on the social media websites! Please consider joining and/or following us on:  
**Facebook group:** search “Illinois Section of the American Association of Physics Teachers”

**Google+ page:** search “ISAAPT”

**Twitter feed:** search “ISAAPT@IllinoisSecAAPT”

The contact for these social media sites is Marianna Ruggerio, [mrugger2@gmail.com](mailto:mrugger2@gmail.com).

### ISAAPT Guidebook Program

<https://sites.google.com/site/isaaptsite/brochures/guidebook-program>

### Outstanding High School Physics Teacher Award



Michael McHale of Byron High School, Byron, IL, receiving the 2016-17 Outstanding High School Physics Teacher Award

2016-2017 Illinois Outstanding High School Physics Teacher Award was awarded to Michael McHale, Byron High School, Byron, IL. Congratulations! For a list of past awardees visit the ISAAPT [website](#).

The award for Outstanding High School Physics Teacher is presented at our Fall meetings. Fellow teachers and school administrators who are aware of exceptional performance and enthusiastic student response are encouraged to fill out the online nomination Form on the [ISAAPT website](#). Those who are nominated were notified by email from Zak Knott, and asked to fill out the online [Candidate Information Form](#).

Previous nominations will be maintained for three years for consideration for future awards.

## Distinguished Service Citation

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.

The 2017 award will be presented at the spring 2018 meeting at Southern Illinois University, Edwardsville, IL. A list of [past awardees](#) can be found in the ISAAPT website.

Each year, the ISAAPT Executive Council solicits nominations for the Distinguished Service Citation. We invite and encourage you to nominate a fellow colleague for the 2017 Distinguished Service Citation to be presented at the Spring ISAAPT meeting. **Please send**

**your nomination by December 1, 2018**

Andrew Morrison, [amorriso@jje.edu](mailto:amorriso@jje.edu). The [guidelines and procedures](#) for the citation can be found in our [website](#).

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