FIAP Newsletter
Spring 2013
American Physical Society Forum on Industrial & Applied Physics

Remember to attend the FIAP business meeting on Tuesday, 19 March 2013 at 5:45 pm in room 322 of the Baltimore Convention Center to meet our newest Fellows and Ken Hass Outstanding Student Paper Award winners!

Contents

Comments and questions can be sent to fiap_newsletter@aps.org.

Opinions expressed represent the views of the individual authors and not the American Physical Society or author's employers.

Letter from the editor

Many years ago I met a family friend who talked about having been a PhD chemical engineer years earlier. At the time I wondered to myself how he could have abandoned science – especially to work as an attorney. I have abandoned many foolish oversimplifications since then, but the idea that individuals abandon a discipline to follow another career path, however, is about as foolishly dogmatic as they come. My own career has so far progressed from "Application Scientist," to "Project Engineer," to "Technology Assessment Manager," to "Intellectual Asset Manager," to "Manager, Optical Physics." I was no less a physicist when I helped develop IP strategies than I am now as I model light scattering.

As we another March Meeting is upon us we should remember that ten years from now at least half of the attendees will likely have jobs associated with labels like "engineering," "programming," or "marketing." Most professions would look upon this as evidence of the relevance and vitality of their discipline. To us, however, they are a diaspora. If asked what physicists do by college or high school students, do we answer truthfully and talk about the careers pursued by most of our PhDs or do describe the type of work most of us only do in the 6 or so years following our college graduation?

As is usual in physics, Einstein can inspire us with a useful perspective: time is what is measured by clocks, distance is what is measured by rulers, and *physics is what physicists do.* We need to avoid the sophistry implicit in, for example, differentiating *applied* from *industrial* physics. While our academic coursework needs to remain focused on the canon of physics, we need to start embracing the excellent contributions of physicists outside of research physics. I had the good luck to interview several of our colleagues who went on to law school after receiving PhDs in physics. All of them want to find ways to interact with their research physics colleagues, but we need to offer them more than a no-expense paid trip to a conference to teach us about the law. At the least we need to give them efficient ways to network at the meeting to find potential clients; even better would be the recognition that their work often contributes to the advancement of physics.

FIAP Focus: Legal careers for physicists

FIAP had the good fortune to track down five of our colleagues who opted to pursue legal degrees after their PhDs. All five work in patent law, though the paths they pursued differ significantly. They graciously agreed to take part in an "audio roundtable" to discuss their careers and what led them down this path.

Participants in the roundtable were:

Gang Chen studied optical spectroscopy from single quantum dots for his PhD in the 1990s. He worked in telecommunications for 9 years before deciding to go to law school part time and is in the process of completing his degree. He works in the IP department of Alcatel-Lucent.

Stuart Mayer studied magnetic properties of ultra-thin Fe-Ag superlattices in graduate school in the late 1980s. He went to law school immediately following his PhD and has practiced patent law at a small boutique legal firm for the last 20 years.

Hay Yeung Cheung studied theoretical nuclear physics in graduate school and went on to work as a systems engineer at AT&T. He has been practicing law for 5 years at a small firm specializing in intellectual property.

Mark Wieczorek did his graduate work on magnetic and structural properties magnetic/non-magnetic multilayers. He attended law school immediately after his PhD and has been practicing patent law at a small boutique legal firm for the last 20 years.

Jayson Cohen studied atomic and optical physics in the 1990s for his PhD. He worked as an industrial physicist studying and building quantum cryptography systems for several years before attending law school. He has been practicing intellectual property litigation for seven years.

The dialogue below summarizes and paraphrases the responses of the attendees for clarity.

FIAP: *Let's start by hearing what led you to physics graduate school and then on to law.*

Gang: I started physics because I liked it in high school, and when I chose a major in college I decided to pursue nuclear physics. When I arrived at graduate school I explored around the different departments and decided to pursue optics and received an EE degree. Afterwards I went to Bell Labs and enjoyed doing technical work for 9 years. The many rounds of job losses I saw during the telecom downturn of the early 2000s spurred me to look for other career options. I didn't like the idea of becoming an academic, and ended up getting into development work. I enjoyed it but thought that my skills would eventually become obsolete, so I looked for other career directions to pursue. IP seemed like a good way to keep involvement in development and have good skills. Today I work in monetizing Alcatel-Lucent's patents in a business development role. The first stage in asserting a patent is highly technical, and that is where I play a role.

Hay Yeung: I started in physics because I heard a lot about what

physicists did when I was young and got excited about doing that type of work. I studied physics throughout school and college in Hong Kong, and continued on to physics graduate school at Yale. I had a hard time finding a job in physics after graduation, but had some colleagues who had gone on to work as system engineers at AT&T. I did R&D in networking for about 14 years and filed a few patents during that time. In working with the patent attorneys I got interested in IP law. When the telecom downturn hit I looked into pursuing a career in patent law. I started by taking the patent bar which does not require a law degree. Later on I decided to get a law degree by enrolling in correspondence school and take the bar exam in California – which allows recipients of these degrees to take the bar. Joined a law firm in New Jersey and can prosecute patents nationwide and practice law in California.

Jayson: My high school physics class and Steven Hawking's first book got me interested in physics. I majored in EE in college focused on optics and lasers because of an inspired professor I had at Brown. When I got my PhD I knew I wasn't interested in academia. After graduating I found a job at a startup doing quantum cryptography. I wound up being the liaison with outside counsel on IP issues because other people didn't want to do legal projects, but I liked them. I started helping the attorneys draft patents and look for patents we might want to acquire. When I went to law school I thought I wanted to do patent law, but was not sure of what part. After my first year of law school I interned at a boutique patent firm and became interested in litigation. 90% of what I do is patent litigation at a firm that works in all areas of patent law. Some law firms won't do prosecution because of its low margins, but our firm practices all elements of patent law. We even have a patent analyst intern program for graduate students in hard sciences to see if they are interested in patent prosecution.

Stuart: I got interested early on in Astrophysics and cosmology, and went straight through college and grad school in physics. At the end of graduate school it was frustrating because it wasn't using all of my skills and it wasn't using my best skills. I loved physics, but it wasn't what I was best at. Specifically, physics did not use my writing skills; I liked the process of thinking about technical things and writing deeply and critically about them. I didn't like working in the lab that much. I needed to find somewhere where I would enjoy the process of my daily work. I did not have a strong attraction to patent law, but I thought I would like the daily work associated with it.

It fits me and suits me well. I started out at a big firm, but I couldn't do patent prosecution there. After 4 years at a big firm I became in-house counsel at Bell Labs for 5 years. Then I started my own firm where I can specialize on patent prosecution. The way I think about it all these elements of my background – physics, math, and law – these are all parts of a toolkit.

Mark: I did well in physics and knew that it would give me a core understanding of science, I entertained some other options, notably astronomy, but always came back to physics as the basis for it all. That being said, I quickly moved into the more applied areas of physics, semiconductors and optics, and that in graduate school got even more applied. In both undergraduate and graduate school, I worked with people who would eventually go into law, usually patent law, but also other areas. Having had an early interest in law even in high school (oddly enough, Admiralty law), it was a pretty natural progression for me.

Patent lawyers specialize in a variety of areas. *Patent prosecution* focuses on drafting patent applications and working with patent offices to get applications granted as patents. Patent litigators work in the court system to enforce their clients' patents against alleged infringers, or protect their clients from claims of infringement. Attorneys are also involved in developing patent licensing and patent transfer agreements between parties. Unlike most areas of the law, the US allows individuals to represent clients in front of the US Patent and Trademark Office (USPTO) without having a legal degree or passing a state bar exam if they have passed the patent bar exam. Like patent prosecutors, these *patent agents* are able to draft patent applications and represent them in front of the USPTO.

Patent law firms sometimes specialize in particular areas due to the nature of the market. Prosecuting patents with national patent offices can take years and require an open-ended commitment of attorney time to address patent office actions. Since many clients want to pay fixed fees for prosecution and since prosecuting a patent may create a conflict of interest with respect to more lucrative litigation or licensing work, some firms avoid patent prosecution. Of course, many firms also believe better customer loyalty can be had by offering a full service patent practice to their clients.

FIAP: *Would you talk a little about the skills you are using now that you did not get to use very much as a research physicist?*

Gang: Research at Bell Labs and grad school are all about depth. I've always been interested in all kinds of things and enjoy having breadth to my knowledge, not just depth. One of the problems that people from the patent side helped me with is the breadth that I was exposed to. In patent law I have to extend myself quickly into new areas, so I can use the ability I gained in graduate school to learn new things and apply them to becoming broader. So patent law lets me always learn new things, and the skill of being able to learn new things quickly helps me work in patent law.

Jayson: The high level background skills we have mean that we aren't afraid to jump into new technologies and get our feet wet. That's a really important skill for patent attorneys as we get into new areas for prosecution and litigation. We always have to learn new things and new fields as a patent lawyer, and we're not just stuck in one field. Physics sub-disciplines in academia have become extremely narrowly specialized. When I became a lawyer I hoped to be able to work in a diversity of areas, and my experience as a patent attorney has shown that to be true.

As a lawyer you also learn to be a much better persuasive writer than as a scientist; the scientific community could learn how to write more persuasively from the law community.

Mark: I agree with the rest. Persuasive writing. In science you write technically and accurately, but the focus is not primarily on persuasion. Certain other skills have gotten well honed over time, including time management and managerial skills, but those are probably common to all industries.

Gang: One other part of graduate school that is important is the perseverance you learn. You constantly run up against walls and have to keep pressing on in impossible experiments. This same skill helps you in the law; you have a patent that you struggle to read into a product, but you press on and eventually figure out a way to do it. Graduate school gives students the chance to work through seemingly impossible problems and prepares students for a variety of careers.

FIAP: *So is there an advantage to going on to PhD? I see more and more people going into patent law right after receiving bachelor's and master's degrees.*

Gang: PhD work gives you more skills (such as perseverance). But of course, you can learn these skills in ways other than graduate school.

Mark: it certainly helps in marketing. But I would say it also helps if understanding how researchers think, having been one. It makes it easier to ask good questions.

FIAP: *Along with perseverance, what other soft skills did you develop in graduate school that are helpful?*

Gang: Graduate school gives you experience pulling together different tool sets to solve a problem. Physics tends to need more tools than other sciences (electronics, math, chemistry, software, etc.), so we tend to have to develop a lot of different skills.

Stuart: Soft skills are far and away the most important thing developed in graduate school. It's the lack of fear in approaching new things that sets professionals up for success. As a patent attorney you are a perpetual graduate student in having to always learn new things. All the PhDs I work with tend to be fearless at jumping in and learning new things. Folks with just a bachelor's degree tend to need more structure and are a bit more apprehensive when approaching new areas.

Jayson: I remember when I was an undergraduate and my eyes would roll back in my head when I approached a hard research paper. The rigor of graduate school made me more comfortable approaching completely new areas. When you get your PhD in a hard science in particular you lose your fear of the unknown.

Hay Yeung: When we do patents we need to quickly identify the salient features of the invention. This is the same as when we have to triage a lot of research papers when we were getting our degree.

Mark: I agree with the others. It's the willingness to approach new problems that is key. Especially as it is a very rare day when I am asked to work on something that is close to what I worked on in graduate school.

FIAP: *What do you miss anything from research physics?*

Stuart: No. I didn't like experimental work. I do romanticize about it, but day to day I don't miss it.

Gang: Working on the stuff in the lab was fun; I can't say I miss it, but if I have to do it I could. I often go back to check on my old colleagues, so I feel connected to academia. As a patent attorney there's no chance of getting the recognition that excellent research physicists can get.

Mark: I too can romanticize about it, but I still have enough contacts with it on a day-to-day basis to fill that nostalgic need.

FIAP: *Let's turn that question around: do you think you dodged a bullet by getting out of research physics?*

Jayson: I'd say you dodged a bullet between the time you get an academic job and get tenure. I have a number of good friends whose stress levels were incredibly high trying to get tenure. But as a lawyer you always want to get clients; as a professor you're always trying to get funding. So there are similarities in the types of pressures on both of those jobs.

(Group): I think that's right.

Mark: only in the sense that I feel my options are much more "open" in law than in academia as far as what I can do, where I can do it, etc.

FIAP: *What frustrations are particular to your legal career?*

Stuart: At a small boutique patent firm you're running a small business that involves all aspects of managing people and personalities. Working with people adds a dimension that is interesting; working with people is much more complicated than any challenges in patent law or research.

FIAP: *Stuart, as someone who went into patent law to exercise your writing skills do you enjoy these managerial aspects to the job?*

Stuart: I'd say yes. As difficult as our day-to-day subject matter is, nothing is more difficult than trying to corral people. It's a whole

different tool set that you get to exercise.

Jayson: The managerial skills required for patent litigation are beyond anything you do in graduate school. Building a real team working together on a massive project takes an incredible amount of coordination. Maybe people working on one of the large collider programs worked in that type of environment, but I never saw that in the laser physics world.

FIAP: *Is success/a good day defined differently today than in graduate school?*

Stuart: For me it's surprisingly very similar. Sitting down and thinking through a problem is just as rewarding today as in graduate school.

FIAP: *How does the satisfaction of getting your team to achieve a goal feel compared to successful individual contributions to a piece of work?*

Jayson: The satisfaction of getting a team working coherently is just different than the satisfaction of solving a problem in graduate school. It's not better or worse – just different.

FIAP: *Let's talk about law school; how did it compare to physics graduate school?*

Jayson: Law school was a much more difficult and stressful than being a physics grad student. Law school is a beast: it's pretty intense.

Gang: I'm still in law school and agree with Jayson – It's more challenging. Every law school ranks every student, and everyone wants to be at the top of the class.

The subject matter is different. In a physics class you can tune out because the subject matter can at times be abstract and non-intuitive; in law school you always understand what they're talking about, but how you synthesize everything into some type of structure is the challenge. Going into the first year, people like us that look at things as "black and white" are challenged because of the shades of gray. In the first year, you're adapting to the stress of the curve and you have no idea how you are doing or how others are doing because your grade depends only on the final exam. After the first semester you have a better idea of how things work. Physicists tend to do better in areas that are very statutory; subjects like constitutional law are harder for physicists. Fear is part of the experience.

Mark: I think they were very different. In law school there are more periods of medium stress. In grad school, there are a few periods of great stress.

FIAP: *How does physics grad school compare to law school for non-native speakers?*

Hay Yeung: I have been doing this so long I don't even think about it?

Geng: I don't feel it much. Reading and writing aren't an issue; verbal arguments are not as easy or natural. You just need to focus on clearly expressing your idea. As long as you speak logically, you will get respect and can excel.

FIAP: *Physics tends to be extremely reductionist. Is the law different?*

Hay Yeung: In law school we learn how to apply patent law to whatever is in front of us, which is similar to how we solve physics problems.

Stuart: Those of us who come from physics have tended to gravitate to the more analytical, reductionist aspects of law.

FIAP: *Any last comments you would like to share*

Stuart: The one thing that is surprising to me about going into law is how many different things you can wind up doing with it, even as a patent attorney. As a physicist there are several tracts you can be on; the diversity of where you can go is really surprising because you are at the intersection of business, technology, and the law. It is difficult to summarize all the careers available to physicists who down this path.

Mark: I think law school, and learning how to formulate a real argument, and of course the assessment of how good that argument is, gave me some great insights into what it means to really understand a subject. I think it would be interesting to go through grad school again with that understanding. Not that I want to – just that it'd be interesting.

FIAP: *Thank you all.*

Interested in learning more? Morrison & Foerster LLP (www.mofo.com) regularly hires recent graduates and post-docs interested in pursuing a career in patent law. For more information, please contact Lee Anne Masetti-Martin, Morrison & Foerster's Patent Recruiting Manager, at lmasettimartin@mofo.com.

Career events at the 2013 APS March Meeting

Crystal Bailey

Given that the majority of physics PhD graduates will find employment in a non-academic setting, APS recognizes the importance of providing students and early career physicists with more information about industrial career paths, as well as resources for long-term career planning. Toward this end, the APS Committee on Careers and Professional Development (CCPD) and the Forum on Industrial and Applied Physics (FIAP) have been working together to increase the number of events at the March Meeting focused on these topics.

Industrial Physics Forum

The Industrial Physics Forum (IPF) brings together speakers from industry, academia, and government who are leaders in industrial applications of physics. IPFs are designed to highlight the workforce and technical needs of industry so that APS members can have a broad perspective of how physicists and physics contribute to the global economy. IPF session topics will include:

- Innovation and Entrepreneurship – Sunday, March 17
- Frontiers in Physics—Monday, March 18
- Frontiers in Nanomanufacturing—Monday, March 18
- Frontiers of Biophysics—Tuesday, March 19

For more information, including room locations and the lists of session speakers, please visit:
http://www.aps.org/meetings/march/events/industrial.cfm

Careers and Professional Development Related Activities

- Career Workshop with Peter Fiske – **Sunday, March 17**. Students will hear a presentation from award-winning science career coach and author Peter Fiske on job search strategies for physicists. The presentation will not only focus on details like resume writing and interview skills, but will also focus on career planning. The presentation is free and open to all meeting attendees.

http://www.aps.org/meetings/march/events/careersphysics.cfm

- APS March Job Expo – Tuesday – **Thursday, Mar. 19 – 21**. In this event, employers will have an opportunity to meet with job seeking physics students, provide information on job openings, and conduct interviews on-site during the meeting. All job postings, resume searches, and scheduling will be coordinated through the APS Online Job Center.

http://www.aps.org/meetings/march/events/jobexpo.cfm

- Techies' Transition to Management with Fred Mael – **Wednesday, March 20**. Many advanced-degree scientists who find employment in the private sector occupy managerial and entrepreneurial roles. This workshop will explore the common pitfalls for scientists turned leaders, and provide ways for them to overcome these potential obstacles and succeed at their new roles.

http://www.aps.org/meetings/march/events/techies.cfm

FIAP Sponsored Events

- Negotiation Skills Workshops for Graduate Students—**Sunday, March 17.** Jointly sponsored by the Committee on the Status of Women in Physics (CSWP) and FIAP, this workshop will teach participants tools and techniques to determine their market worth for the specific position they are seeking, followed by the strategy and persuasive language needed to get paid their worth as they start their careers.

http://www.aps.org/meetings/march/events/negotiation.cfm

- Meet your Future: Industrial Careers for Physicists – **Tuesday, March 19.** In this special lunchtime session, three representatives from industry will conduct brief mini-workshops on the following topics:

  –Physics Entrepreneurship—"When nobody else is doing it."

  –The Nature of a Physics Job in Industry

  –Best Practices for Searching, Applying, and Interviewing for Industrial Physics positions.

Speakers will include Alice White (Alcatel-Lucent), Sam Wurzel (Octopart, Inc.) and Mark Bernius (formerly of Dow Chemical, and chair elect of FIAP).

http://www.aps.org/meetings/march/events/fiap.cfm

- Graduate Students Lunch with the Experts – **Wednesday, March 20:** The Graduate Student Lunch with the Experts is an opportunity for students to have a one-on-one interaction with physicists while sharing a meal. This year, the FIAP has increased its participation in the Lunch with the Experts, so there should be a very robust representation from industry at this year's event.

http://www.aps.org/meetings/march/events/experts.cfm

The Ken Hass Outstanding Student Paper Award

The purpose of this award is to recognize outstanding student papers on industrial applications of physics submitted to a sorting category or a focus session sponsored or co-sponsored by the Forum on Industrial & Applied Physics (FIAP) at the APS March meeting. The award consists of $1,000 and a certificate citing the name of the recipient and the title of the paper. It will be awarded annually at the FIAP business meeting.

The Ken Hass Outstanding Student Paper Award is named in recognition of the many contributions of Ken Hass to the industrial applications of physics (especially automotive applications of theoretical solid-state physics) and of his service to the APS in the FIAP Chair-line from 2001 to 2004. As Director of the Physics Department at Ford Research, Ken Hass was strongly committed to promoting science education at the pre-college and college level. The award was endowed in 2011 by FIAP.

This year's winners are:

John L. Lyons, UC Santa Barbara
B23.00004, "How localized acceptors limit p-type conductivity in GaN"
Monday, March 18 11:51 am – 12:27 pm, room 325.

Alexander Slepko, Univ. Texas at Austin
Y21.00012, "Electrical Resisitivity in Metals and Metallic Alloys from First Principles"
Friday, March 22 10:12 am – 10:24 am, room 323

2013 APS Fellows for FIAP

The Forum on Industrial and Applied Physics is proud to present a list of members nominated by FIAP and elected to Fellowship in the American Physical Society. Each new fellow is elected after careful and competitive review and recommendation by the FIAP Fellowship Committee, additional review by the APS Fellowship Committee and final approval by the full APS Council.

Beausoleil, Raymond: ***Hewlett-Packard***
Citation: For contributions to basic research in nonlinear and quantum optics with applications to information technology

Branz, Howard: ***NREL***
Citation: For seminal research on thin film silicon: defects, metastability, growth processes, nanostructuring, and solar cells

Cahay, Marc
Citation: For seminal contributions to understanding transport properties of mesoscopic systems and for pioneering work in spintronic devices

Goldman, Rachel: ***University of Michigan, Ann Arbor***
Citation: For contributions to the fundamental understanding of strain relaxation, alloy formation, and diffusion, and their applications to nanostructure processing

Grein, Christoph: ***University of Illinois, Chicago***
Citation: For achievements in novel superlattice-based infrared detectors and emitters

Guo, Chunlei: ***University of Rochester***
Citation: For pioneering contributions in laser-matter interactions and applications, including the discoveries of the black and colored metals and exploring their wide range of applications

Lakhtakia, Akhlesh: ***Penn State University***
Citation: For conceptualization of sculptured thin films; wide-ranging theoretical and experimental research in optics on these materials; design, fabrication, and characterization of optical devices for circular polarization; and significant extensions to biomedical, biomimetic, and forensic arenas

Liddle, James: ***NIST***
Citation: For contributions to the science and technology of nanofabrication and nanolithography, including projection electron beam lithography, high-resolution x-ray optics, diblock copolymer and chemically amplified resists, and the directed assembly and metrology of nanoparticle structures

Munro, William: ***NTT Basic Research Labs***
Citation: For extensive contributions to applied quantum information. He proposed a scheme for quantum multiplexing in a quantum network and weak optical nonlinearities for optical quantum computing. He was the theoretician on the team that first demonstrated coupling of a superconducting flux-qubit to NV diamond spins

Nikzad, Shouleh: ***Jet Propulsion Lab***
Citation: For innovative development of band structure engineering techniques using delta-doping at semiconductor surfaces and their application to produce unprecedented performance in sensors and devices

Shinn, Michelle: ***Jefferson Laboratory***
Citation: For contributions in the applications of lasers in society, particularly the development of high power optics technologies for rare earth solid state lasers and free-electron lasers

Specht, Eliot: ***Oak Ridge National Laboratory***
Citation: For crystallographic studies of the effects of microstructural defects on materials properties, including advancing the understanding of the effects of crystallographic alignment on current transport in high-temperature superconductors

Spitzer, Mark: ***MicroOptical Corp***
Citation: For seminal research on industrially important opto-electronic devices, including photovoltaic devices, microdisplay devices and eyeware display devices

Tanielian, Minas: ***Boeing***
Citation: For ground breaking advancements in the application of condensed matter physics to electronics communications in the aerospace industry, as well as nanotechnology research with global significance

Thomas, Luc: ***IBM Almaden Research Center***
Citation: For significant contributions to the fundamental understanding and applications of the current and field induced dynamics of magnetic domain walls

Yang, Jihui: ***University of Washington***
Citation: For pioneering studies of the design, synthesis and characterization of novel thermoelectric materials, and for leadership in their use in devices and systems for waste heat recovery applications

The February 2013 FIAP elections

Phil Wyatt

The recent FIAP elections (regrettably, 2 months *late*) for Vice Chair and 2 Members-at-large were record shattering in two regards:

First of all, we had the greatest voting turnout in recorded FIAP history with 1579 votes accounting for 24% of our total membership (6628 down from 7058).

And perhaps of equal importance was that the total number of votes cast, 1579, represented the largest turnout in numbers for any APS unit, ever! We even blew away DCMP by a country mile!

These extraordinary results were entirely due to the basic good nature and support of the FIAP membership who endured being harassed and challenged by unrequested emails sent several times during the election period. But by far the most important outcome of this tremendous vote was the expressed willingness ...no, perhaps better said as "the expressed desire"… of the FIAP members to interact and communicate *directly* with the very Executive Committee (EC) they elect and in whom they entrust the promotion of their interests. During the election, there were several direct email exchanges between the FIAP Chair and the corresponding members. In the months and years ahead, your Executive Committee will try to establish a URL/Web address by which means the FIAP membership may communicate directly to its EC board… and be assured of a rapid response.

On behalf of the FIAP EC, we thank you all whose careers and work are at industrial pursuits for providing the energy and means by which the Nation may expand its industrial base and, thereby, increase employment opportunities for so many. Your interest in the APS and participation in FIAP confirm the continuing importance of physics in your lives and your professions.