

# FIAP

Winter 2022



## Newsletter

American Physical Society Forum on Industrial & Applied Physics

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**Information about FIAP is available on the FIAP website at: <https://engage.aps.org/fiap/home>**

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

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## Letter from the Editor

Following almost two years of pandemic, marked by the cancellation of March Meeting 2020 in many ways for most physicists, we are looking forward to a (partially) in-person March Meeting in Chicago. Also, we are pleased that with over 12,000 abstracts the March Meeting continues to be the largest physics meeting in the world, and the best showcase for the latest physics research going on globally. With March Meeting coming soon, we will outline the Forum on Industrial and Applied Physics sessions for the Meeting, especially encouraging members to participate in Industry Day, held primarily on Wednesday, but continuing through Thursday with a closing reception following the day's last session. We look forward to welcoming our new FIAP Fellows, and we congratulate the newest members to receive this honor, and they are highlight-

ed later in this Newsletter. We will also hear from the Director of Industrial Physics Engagement, Dr. Daniel Pisano, as he continues to engage with the industrial physics community, especially focusing on connections for early-career physicists. As we look forward to seeing everyone again in-person, we hope to connect with FIAP members through the Newsletter, keeping all abreast of Forum activities, and especially events at March Meeting. Any additional contributions are welcome, and the Newsletter can provide an outlet for discussions of interest to the FIAP membership. Contact info for the Newsletter, all of the FIAP Executive Committee members, and other information can be found on the recently redesigned FIAP website: <https://engage.aps.org/fiap/home>

*-Todd Brintlinger, Editor*

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## FIAP at the 2022 APS March Meeting

As the pre-eminent worldwide physics meetings, the March Meeting of the APS is where a global community of physicists, scientists, and students will showcase their groundbreaking research from industry, academia, and major labs each year. After two years of pandemic and a virtual 2021, March Meeting 2022 will be held March 14 to 18 in a hybrid format, with in-person talks happening in Chicago, Illinois (<https://march.aps.org/>). With over 11,000 abstracts submitted and more than 850 sessions the March Meeting is the largest conference hosted by the APS. It is expected that more than 11,000 attendees will join in this hybrid meeting.

FIAP as usual will host a series of Sessions, both invited and contributed, with talks by both distinguished and emerging scientists on the latest research in industrial and applied physics such as the Future of Energy, Quantum in Industry, and Physics-enable Medical Devices. Partnering with the Topical Groups on Medical Physics (GMED) and Data Science (GDS), the Division on Quantum Information (DQI), as well as the Forum on Early Career Scientists (FECS), FIAP sponsored and co-sponsored invited sessions will begin on Monday afternoon and continue through the end of

Thursday. Concurrently, there will also be contributed FIAP sessions beginning on Monday afternoon.

One of the highlights of the March Meeting is Industry Days, held throughout the week, with highlights on Wednesday March 16<sup>th</sup>. This year's theme is "Industrial Physics Driving Innovation." There are focused technical sessions throughout Wednesday. This includes an entire session featuring recently appointed FIAP Fellows of the APS. After the conclusion of the day's technical sessions, all FIAP members are invited to our annual FIAP Business Meeting which will begin at 6:00 PM on Wednesday. Industry Days information can be found at <https://march.aps.org/industry-days>.

We look forward to seeing everyone at this year's March Meeting, virtually or otherwise.

Please note all times will be in Central Daylight Time (CDT) in accordance with its location in Chicago.

*-Dr. Nathan Orloff (FIAP Vice Chair)*



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## FIAP Elections Results

Each year, FIAP holds elections to fill all the positions required by its by-laws and to continue the work of the Unit. 499 FIAP members turned out to cast their vote in these competitive elections that resulted in a new FIAP Vice Chair and 4 new members at large. As always, we encourage all FIAP members to consider

### Vice Chair

**Anne Matsuura**

Intel Lab, Hillsboro, OR

Dr. Matsuura is the Director of Quantum & Molecular Technologies at Intel Labs, where she has led research teams in quantum algorithms and architecture and in innovative sensing technologies. Previously, she worked in Belgium as the Chief Executive of the European Theoretical Spectroscopy Facility (ETSF), an organization of 250 scientists throughout Europe providing scientific collaborations, modeling and simulation, and open-source software to the public and private sectors.

### Executive Committee Members-at-Large

**Katarina Cicak**

National Institute of Standards and Technology

Dr. Cicak works in the Advanced Microwave Photonics (AMP) group at NIST where she leads device fabrication efforts encompassing SC qubits, quantum-efficient amplifiers, and optomechanical devices. She has been involved in extensive collaborative efforts with industry, academia, and other national labs, both domestic and international, and has 45 published papers and over 6400 citations.

themselves, friends, mentors, mentees, and colleagues to run for these positions.

Contact info for the current FIAP Executive Committee members, and general FIAP information can be found on the recently redesigned FIAP website: <https://engage.aps.org/fiap/home>

—Dr. Abram Falk (FIAP Member-at-Large)

**Gil Travish**

ViBo Health LLC

Dr. Travish recently launched a new start-up, ViBo Health, working in the non-invasive in vivo metabolomics space. Previously he co-founded, served as a board member and Chief Science Officer for Adaptix Ltd., working on novel x-ray sources for medical imaging for the past 10 years. He was recently appointed to be a fellow of the APS.

**Scooter Johnson**

Honeywell

Dr. Johnson works for Honeywell, Inc. where he works on developing techniques for understanding temperature, pressure, flow, and materials at cryogenic temperatures. He also serves as an editor for IEEE Transactions on Magnetics and has over 35 peer-reviewed articles and proceeding, and 3 patents.

**David H.A. Blank**

Univ of Twente

Prof. Blank is Distinguished Professor at the University of Twente and Emeritus Professor since 2019. In 2018, he was appointed for a period of 6 years as advisor to the Executive Board of Saxion, University of Applied Sciences on research-related topics. He has founded 4 spin-off companies.

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## APS Council on Future of APS Meetings

On November 10th APS Council approved the recommendation presented by the Committee on Scientific Meetings that all future APS scientific meetings are expected to include a virtual component, which would be hosted on an APS-approved software

platform commensurate with the size and scope of the event. In accordance with APS's stated values, this will allow greater inclusivity at APS events by making them more accessible and by expanding their reach.

—Ms. Janay Oliver (FIAP Administration)

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# FIAP Fellowships, Lectureships, Awards and Prizes

Pandemic or not, FIAP continues to recognize its members with the highest dedication to both physics overall and the FIAP mission to promote industrial and Applied Physics, and we are happy announce our newest APS Fellows, as well as the FIAP Distinguished Lecturer and Pake Prize awardee, highlighted below. With a hybrid meeting, we look forward to offering congratulations, certificates, and Fellows pins to as many recipients as can attend in-person, but we will also honor those that can only participate virtually, as such we welcome all FIPA members attending the March Meeting, virtually or otherwise, to participate in the vir-

tual FIAP business meeting on Wednesday evening, March 16th, where Fellows, Award and Prize recipients will be acknowledged.

As always, nominations for Fellowships of esteemed colleagues are a way for FIAP to recognize its members, and FIAP members are urged to consider assembling packages early before the summer 2022 deadline. Details can be found at the APS Fellowship website, <https://www.aps.org/programs/honors/fellowships/nominations.cfm>

—Dr. Curt Richter (FIAP Chair-Elect)



## FIAP Fellows (2021):

**Jungsang Kim**  
Duke University

For pioneering contributions in research and development, invention and entrepreneurship in trapped ion-based quantum computing, large-scale optical switches, and gigapixel-scale cameras.

**Hanhee Paik**  
IBM TJ Watson Research Center

For pioneering a novel superconducting qubit architecture that catalyzed the commercialization of superconducting quantum computing, and for contribution to advance quantum computing research in the industry.

**Sungwoo Hwang**  
Samsung Adv Inst of Tech

For pioneering contributions to and outstanding leadership in transforming physics research into industrial applications, with landmark achievements in semiconductor electronics.

**Gil Travish**  
ViBo Health LLC

For contributions to the development of advanced accelerators, radiation production from charged particle beams and for translating this research into applications in medical imaging and 3D tomosynthesis x-ray sources.

**Christy Tyberg**  
IBM TJ Watson Research Center

For leadership in scaling superconducting quantum hardware through wafer-level microfabrication and advanced packaging

**Dave H.A. Blank**  
Univ of Twente

For pioneering experimental contributions to the science, synthesis, and technology of transition metal oxides including devices based on these functional materials.

**W. Lowell "Skip" Morgan**  
Kinema Research & Software

For development and application of innovative and state-of-the-art, low-temperature plasma modeling software for industrial applications, including micro-electronics, nanotechnology, and pollution control, as well as for understanding naturally-occurring and artificially-stimulated plasma discharges.

**Maksim Skorobogatiy**  
Ecole Polytechnique de Montreal

For pioneering contributions to guided optics and photonics in the visible, mid-infrared and far-infrared spectral ranges.

## Distinguished Lectureship Award on the Applications of Physics (2020):

**Sufi Zafar**  
IBM TJ Watson Research Center

Citation: For invention and commercialization of the pulsed laser deposition process and for sustained leadership in academic entrepreneurship.

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## Update on Industrial Physics Engagement



In our last newsletter we announced the opening of the Industrial Mentoring Program (IMPact: <http://impact.aps.org>) to a wider audience. Registrations jumped by more than 100. More importantly we have begun contacting those registrants who have been experiencing difficulty in finding a suitable member to try to assist them. We also learn by this two-communication the type of mentors users are looking for. Later this spring we will report our findings along with recommendations for engaging suitable mentors.

Also last Spring we reported on our pilot program to improve the business skills of physics (>60% physics graduates ultimately find permanent employment in non-academic positions) students destined to work in the private sector. This pilot program was very

successful with over 1,000 registrants attending nine unique webinars.

We have now begun a search for a more permanent source of webinar material for this program. We expect that later this year we will have in place a robust source for webinar material. Furthermore, we are searching for a “few good companies” to sponsor this educational series. In return they will receive special access to members and member programs. If your company is interested in participating, please ask them to contact the author at [pisano@aps.org](mailto:pisano@aps.org).

—Dr. Daniel Pisano (APS Director of Industrial Engagement)

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## FIAP Chair's Thoughts

Dear FIAP Members,

We make our own communities. In my final letter as the chair of FIAP I ask you to help strengthen ours. By doing so, we all become stronger. Recently, I spoke with a graduate student who contacted me through the APS IMPACT mentoring network. She is apprehensive about her future because she has no idea how to recast her academic physics experience in a way that will help launch the industrial career she wants. I have lost track of how many students I have mentored through the same scenario. Even so, I can only help a few on my own, I need your help to reach all the students that need personal attention. These young men and women are the future of industrial and applied physics, so please take a moment right now to sign up as a mentor for the IMPACT (<https://impact.aps.org/>). If your experience is anything like mine, then you will get as much out of it as those you help.

On the other end of the career spectrum, it is important to recognize outstanding achievement among the mid-career and senior members of our forum with APS Fellowship. Again, we need your help building a quality pool of nominees, especially when it comes to candidates from underrepresented groups. FIAP's nomination criteria (<https://engage.aps.org/fiap/honors/fellowships>) center around significant contribution to the field of industrial and applied physics and recognize that contribution can take many different forms depending on where we work. Some of us have long patent and / or publication records, while others can point to successfully commercialized products or a long record of service

to our community. I ask that you think deeply about who among your colleagues deserves the honor of fellowship and consider sponsoring a nomination. This year's FIAP Fellow Nominations are due June 1, 2022.

Finally, I am excited to welcome Anne Matsuura as the newly elected Vice Chair of FIAP. Her term will begin in March as Curt Richter becomes Chair, Nate Orloff steps up to Chair-Elect, and take the role of Past Chair. All of us are interested in hearing from those of you who would like to participate in FIAP by serving on the executive committee. Every year we need at least two candidates for member-at-large and a candidate for the chair line. Our FIAP executive committee is a dedicated and enthusiastic team that works throughout the year to keep programs like IMPACT and awards like Fellowship operating smoothly, as well as building the annual FIAP program at March Meeting. If you are interested in joining us, then it is never too early to put your name forward. You can reach out to me on LinkedIn (<https://www.linkedin.com/in/drmatthewthompson/>) or look up any member of the chair line in the APS directory (<https://my.aps.org/apsmemberdirectory>). The FIAP nominating committee will consider candidates throughout the spring and summer for inclusion on our fall election ballot.

*Best Regards,*

*Matthew C. Thompson, PhD*

*Chair of the APS Forum on Industrial & Applied Physics  
Director of Systems Engineering, Zap Energy Inc.*