Discussion PSV I Mon 13:00 HSZ/AUDI

Sustainability! And now? – Opportunities for young researchers — •Roxana Scharpegge[1,10,11], Hiroki Sayama[2,3], Thomas Schubatzky[4], Birte Höcker[5], Uwe Riedel[6], John Plane[7], Pauleo Nimtz[8,10], and Stefanie Falk[9,11] — [1]Bielefeld University — [2]Binghampton University, State University NY, USA — [3]The University of Tokyo, Japan — [4]Universität Innsbruck, Austria — [5]University of Bayreuth, Germany — [6]DLR Institute für CO2-arme Industrieprozesse, Cottbus, Germany — [7]University of Leeds — [8]Potsdam University, Germany — [9]Karlsruher Institut für Technologie — [10]Working Group Young DPG (AKjDPG) — [11]Working Group Climate (AGK)

Did you miss learning about sustainability during your studies? Does the flood of news about the climate crisis make you feel hopeless? Are you interested in having a societal impact through your day-to-day work? Your skills and experiences from diverse areas can be valuable in developing innovative solutions to sustainability challenges, as collaboration between different disciplines and sectors is crucial to creating a more sustainable future. In this panel discussion, we want to encourage you to consider a career in this future-shaping field.

Inspired by experiences and insights from experts who were once in the same position as you, we aim to offer you a glimpse into the opportunities available and discuss different career pathways. Feel free to contribute your own questions. We hope this discussion helps you in your decision to transform both your future and ours.

Lunch Talk PSV II Mon 13:00 HSZ/0004

Physics Meets Statistics: Advancing Data Analytics in Semiconductor Manufacturing — •Sarah Fischbach — Robert Bosch Semiconductor Manufacturing Dresden GmbH

After earning her Ph.D. in semiconductor physics, Sarah Fischbach transitioned to an industry career. In 2018, she joined the newly established semiconductor plant of Bosch in Dresden, where she began developing concepts and methodologies for data analytics and exploring applications of machine learning. Since 2022, she has been responsible for analytics and digitalization within the technology department of the 300 mm wafer fab. In this session, she will discuss the exciting challenges the semiconductor industry presents to physicists and share insights on how machine learning can support production processes.

Discussion PSV III Tue 13:00 HSZ/AUDI

Soft Science Skills - Self-branding for Scientists — •Lucas Kreuzer[1], •Christian Kuttner[2], and •Alexander Schlaich[3] — [1]Heinz Maier-Leibnitz Zentrum (MLZ), TUM, Garching, Germany — [2]Nature Communications, Berlin, Germany — [3]Technische Universität Hamburg, Hamburg, Germany

This session explores communication and self-branding strategies designed for scientists, helping them to effectively communicate their expertise and build a recognizable professional identity. Our invited speakers will share insights on how science communication can be used as a tool to position oneself strategically within a research or industry field and how to benefit from the multiple opportunities of digital and social media platforms. Thereby, attendees will obtain a specific action plan on how they can enhance their visibility, credibility, and career opportunities in academia and industry.

Lunch Talk PSV IV Tue 13:00 HSZ/0003

Funding Opportunities for International Collaborations at the German Research Foundation — •Joanna Kowalska, Mario Bomers, Christian Hahn, and Michael Mössle — Deutsche Forschungsgemeinschaft e.V., Bonn; Germany

The German Research Foundation (Deutsche Forschungsgemeinschaft, DFG) is Germany's largest organisation for funding fundamental research. As a self-governing body that supports and promotes research, it offers a wide range of funding opportunities, from individual grants to large coordinated programmes. This talk will focus on the DFG's opportunities for supporting international collaborations. It will cover the ways in which international research partners can be included in individual grants and coordinated programmes, as well as outline dedicated funding opportunities for bi- and multilateral projects. It will also introduce the Walter Benjamin Programme, which supports researchers in their early career phase in gaining experience at a research institution, either abroad or in Germany.

Ceremonial Talk PSV V Tue 16:00 HSZ/AUDI

Quantum computers as large research instruments - what can we expect and how do we develop them? — •Frank Wilhelm-Mauch — Institute for Quantum Computing Analytics, Forschungszentrum Jülich, Wilhelm-Johnen-Straße, 52428 Jülich, Germany — Theoretical Physics, Saarland University, 66123 Saarbrücken, Germany

Quantum computing is currently a ubiquitous topic in the science and technology media. This has good reasons: The progress has been remarkable, quantum computers promise enhanced computational reach without relying on Moore's law - on the other hand, some promises are also far beyond what can be seriously justified. This talk will give a review of the status of the field and argue that they curretly should be viewed as large research instruments. This means that they should be developed with open access and leave room for creative uses and solutions. This opens great opportunities for physicist to co-develop, understand, and use these machines.

Discussion PSV VI Wed 13:00 HSZ/AUDI

Career Paths: Academia or Industry? — •Joanna Kowalska[1], •Elisabeth Trommer[2], •Jonas Schubert[3], •Annegret Rössler[4], Pauleo Nimtz[4], Aisha Aqeel[5], Lucas Kreuzer[5], and Hans-Georg Grothues[6] — [1]German Research Foundation (DFG), Bonn — [2]Attocube systems AG, Munich — [3]DermaPurge, Dresden — [4]Working Group Young DPG (AKjDPG) — [5]AG young Leaders in Physics (AG youLeaP) — [6]Working Group on Industry and Business (AIW)

After completing your undergraduate studies, your PhD, or, at the latest, your first postdoc, you may ask yourself: Do I want to stay at a research institution or work in industry? In this panel discussion, we would like to talk about this question with experts from different areas of science and industry representing different career paths and stages.

There will be further time for questions and personal discussions at 15:00 to 16:30 in room BEY/0117.

Lunch Talk PSV VII Wed 13:00 HSZ/0002

The French Research Landscape in Physics — •Elisabeth Giacobino — Laboratoire Kastler Brossel, Sorbonne Université, ENS, CNRS, 75005 Paris, France

France has a strong scientific community in physics, with many centers located in several large cities, especially in Paris and in the Ile de France region (the Paris region). In the past years there was an effort to reinforce activities like higher education and research outside the Paris region. The French research is operated by the Universities and by large organisations like CNRS or CEA. Most of the laboratories and institutes in physics are managed jointly by a university and an organisation like CNRS. The large instruments are also mostly operated by research organisations. There is a long tradition of international cooperation in France, especially with Germany. In particular Germany and France are quite successful in the European projects, and Germany is the most frequent partner of France in these collaborative projects. In this presentation we will show more details on the geographic location and on the organization of the French research institutes and laboratories in physics, and on the international and European collaborations, in particular with Germany.

Evening Talk PSV VIII Wed 19:00 HSZ/AUDI

Gravitationswellenastronomie – quo vadis? — •Michèle Heurs — Leibniz Universität Hannover, Hannover, Germany — Deutsches Zentrum für Astrophysik (DZA), Görlitz, Germany — Deutsches Elektronen-Synchrotron DESY, Zeuthen, Germany

Seit der ersten direkten Detektion von Gravitationswellen (GWn) im Jahr 2015 haben wir ein völlig neues Beobachtungsfenster zum Universum aufgestoßen (komplementär zu elektromagnetischem Spektrum, Neutrinos und kosmischer Strahlung) und damit das Zeitalter der Multi-Messenger-Astronomie mit GWn eingeläutet. Eine Fülle wissenschaftlicher Erkenntnisse wurde bereits gewonnen – aber es gibt noch so viel mehr zu entdecken!

Die Empfindlichkeit aktueller laserinterferometrischer GW-Detektoren ist so aberwitzig hoch, dass das durch die Quantenmechanik gegebene Rauschen des verwendeten ultrastabilen Laserlichts die Messungen limitieren würde. Dies erfordert die Verwendung von nichtklassischem (sog. „gequetschtem“) Licht, das bereits routinemäßig in der aktuellen (zweiten) Generation von GW-Detektoren, z. B. aLIGO und AdVirgo, eingesetzt wird. Viele zusätzliche Rauschquellen, wie seismisches und thermisches Rauschen, stellen weitere Herausforderungen für die Detektoren der nächsten (dritten) Generation dar, z. B. für das Einstein-Teleskop, ein geplantes unterirdisches

GW-Observatorium in Europa.

Um mehr über unser Universum zu lernen, benötigen wir höhere Detektionsraten für eine aussagekräftige Gravitationswellenastronomie; dafür benötigen wir höhere Detektionsempfindlichkeit und größere Detektionsbandbreite. In meinem Vortrag werde ich das Prinzip der interferometrischen GW-Detektion einführen, einige der fortschrittlichen Technologien (bereits eingesetzt oder in Entwicklung) erläutern und die Pläne für zukünftige interferometrische Gravitationswellenobservatorien wie das Einstein-Teleskop beleuchten.

Lunch Talk PSV IX Thu 13:00 HSZ/0004
The organic development and growth story of aSpect Systems GmbH — •Marcus Verhoeven — aSpect Systems GmbH

The talk will present the organic development and growth story of aSpect Systems GmbH, a Dresden-based technology company at the intersection of semiconductor engineering and applied physics. Starting from a small team dedicated to advancing semiconductor test and automation technologies, aSpect has continuously evolved by leveraging deep technical expertise in hardware, software, mechanics and optics to solve real-world industrial challenges. Today, the company supports development services, supply chain solutions, test and automation equipment for imaging, optoelectronics and semiconductor manufacturing, helping to bridge the gap between cutting-edge research and industrial application.