

# Press Release

2025-04-06



Leibniz Institute  
for High  
Performance  
Microelectronics

## Dr. Costanza Lucia Manganelli appointed to lead new IHP Junior Research Group

**Frankfurt (Oder).** The IHP is proud to announce the appointment of Dr. Costanza Lucia Manganelli as leader of the new Junior Research Group “Computational Materials Engineering” as part of the IHP's internal program for the promotion of outstanding young scientists. Dr. Manganelli holds a Master's degree in Solid State Physics and a PhD in Photonic Technology. She has been actively involved in materials science and silicon photonics for over a decade. She has published over 50 papers with 942 citations and a Hirsch index of 15. She also has extensive experience in mentoring, international collaboration, editing and organizing scientific conferences.

The new research unit will be established in IHP's Materials Research Department and will focus on the interdisciplinary project MODeling Of novel and alternative MATerials for Semiconductor Devices (MODoMAT). The MODoMAT project aims to establish a comprehensive modelling platform that integrates the mechanical, optical and electrical properties of semiconductor materials. This platform will optimize device performance by bridging the gap between experimental and theoretical research. It will overcome the limitations of commercial software, which is often based solely on classical physics, by incorporating customized programs. Among other things, the aim is to design semiconductor devices more precisely, optimize their production costs and speed up the development process. The project is particularly relevant to the energy transition and the development of power electronics and technologies such as quantum computing, autonomous driving and space applications.

"The Computational Materials Junior Research Group will be at the interface between fundamental materials research and device design and optimization, bridging the gap between experimental and theoretical research. It will provide a new and more detailed multi-parameter simulation platform with optimized models and innovative materials. This will contribute to both technological optimization and a better understanding of physical processes," says Dr. Manganelli.

The IHP Junior Research Group Program is an internal initiative of the IHP that supports outstanding young researchers by enabling them to establish and lead their own research group for a period of up to 5 years. The establishment and first few years operation of the group is supported by internal funding with the goals of increasingly running the group with third party funding during the second half of the program. The aim of the program is to establish a research group on a research topic that is highly compatible with the IHP strategy and is currently or will



# Press Release



be highly relevant for the IHP in the future. This explicitly includes basic research topics that have an increased risk of success.

"Appointing Dr. Costanza Manganelli as the head of the Computational Materials Engineering Junior Research Group marks an important step in further strengthening IHP's position as a leading European research center in semiconductor technologies. Her interdisciplinary approach and demonstrated ability to conduct independent, cutting-edge research make her the ideal choice to lead this initiative.," says Prof. Dr. Christian Wenger, Head of Materials Research Department at IHP.

Leibniz Institute  
for High  
Performance  
Microelectronics



Dr. Costanza Lucia Manganelli  
appointed as leader of the  
Junior Research Group  
© IHP 2025/Inesa Posypai

## Contact:

Dr. Anna Sojka-Piotrowska  
Marketing and Strategy  
IHP GmbH – Leibniz Institute for High Performance Microelectronics/  
Leibniz-Institut für innovative Mikroelektronik  
Im Technologiepark 25  
15236 Frankfurt (Oder)  
Fon: +49 335 5625 409  
E-Mail: [sojka@ihp-microelectronics.com](mailto:sojka@ihp-microelectronics.com)

## About IHP:

The IHP is an institute of the Leibniz Association and conducts research and development of silicon-based systems and ultrahigh frequency circuits and technologies including new materials. It develops innovative solutions for application areas such as wireless and broadband communication, security, medical technology, industry 4.0, automotive industry, and aerospace. The IHP employs approximately 400 people. It operates a pilot line for technological developments and the preparation of high-speed circuits with 0.13/0.25  $\mu\text{m}$  SiGe BiCMOS technologies, located in a 1500 m<sup>2</sup> DIN EN ISO 14644-1 3 certified clean room.

[www.ihp-microelectronics.com](http://www.ihp-microelectronics.com)

