



2025 IUVSTA Major Awards Recipients Announced

Timo Gans, Chair of the IUVSTA Awards Committee



Professor Guy LE LAY

The 2025 IUVSTA Prize for Science is awarded to **Professor Guy LE LAY** from Aix-Marseille University, PIIM-CNRS, Laboratory, Marseille, France with a citation "Outstanding achievements in the study of the formation of metal-semiconductor interfaces controlled at the atomic scale and characterized with most advanced tools, and groundbreaking realizations of silicene, germanene and other low-dimensional artificial quantum materials called Xenos, whose emerging properties open a new horizon of discovery."

Guy Le Lay, after studying engineering at the École des Mines de Nancy (1968), turned to solid-state physics, in which he would develop work on low-dimensional physics throughout his career. As an experimental physicist, he combined his work with advanced theoretical approaches.

He is currently Professor Emeritus at Aix-Marseille University, member of the Physics of Ionic and Molecular Interactions Laboratory (<https://piim.univ-amu.fr/les-actualites/>).

Guy Le Lay began his career in Marseille under the direction of Professor Raymond Kern with highly original studies on metal-semiconductor interfaces, with the aim of understanding the formation of the Schottky contact at the atomic scale. These studies were synthesized in a seminal article detailing the structural and electronic properties of the "prototype" interface formed in situ under ultra-high vacuum by molecular-beam epitaxial deposition of silver on single-crystal silicon (111) surface (Ag/Si(111) system) [1].

Guy Le Lay's scientific career then turned to the exploration of new two-dimensional atomic worlds. While graphene had opened a breach in research into two-dimensional materials, Guy Le Lay saw a much wider horizon. He set about fleshing out new materials derived from Group IV elements, which have come to be known as Xenos. The experimental realization of silicene in 2012 by solving the inverse problem, reversing the situation like Alice through the looking glass (Si/Ag(111) system), was revolutionary [2]. This system revealed for the first time a form of two-dimensional silicon in a graphite-like, semi-metallic form (sp^2 hybridization).

Guy Le Lay had previously been awarded the Fernand Holweck Prize and Medal in 2021 by the Institute of Physics (UK and Ireland) and the Société Française de Physique, in recognition of his pioneering role in the study of new two-dimensional allotropes of silicon, germanium, tin and lead.

Guy Le Lay's international reputation is well established: he has been a visiting professor for long periods on



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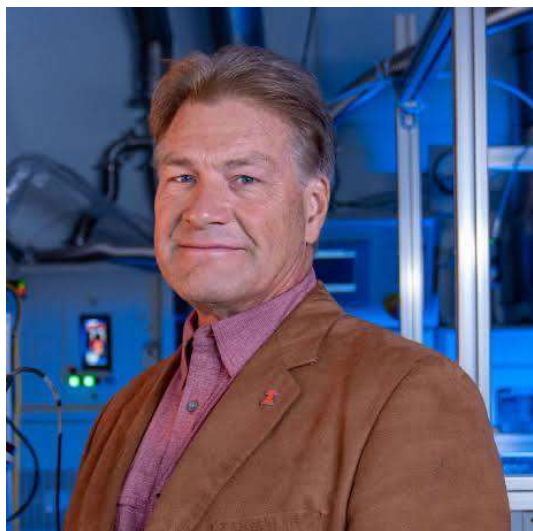
several continents, at prestigious universities including Princeton University in the USA, Tokyo University and Nagoya University in Japan, Chalmers University of Technology and the Royal Institute of Technology in Sweden, the Institute of Materials Science in Madrid (ICMM-CSIC) and the Institute for the Structure of Matter in Rome (ISM-CNR), and the Laboratory for the Use of Electromagnetic Radiation (LURE, Orsay).

The award ceremony will take place at the International Vacuum Congress (<https://ivc23.org/>) in Sydney, Australia, from September 15 to 19, 2025. On this occasion, Guy Le Lay will have the opportunity to present his research at an Honorary Lecture.

- [1] G. Le Lay, 'Physics and Electronics of the Noble-Metal/Elemental-Semiconductor Interface Formation: a Status Report', Surface Sci. 132 (1983) 169.
- [2] P. Vogt, P. De Padova, C. Quaresima, J. Avila, E. Frantzeskakis, M.C. Asensio, A. Resta, B. Ealet, and G. Le Lay, 'Silicene: Compelling Evidence for Graphenelike Two-Dimensional Silicon', Phys. Rev. Lett. 108 (2012) 155501.



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Professor David Ruzic

The 2025 IUVSTA Prize for Technology is awarded to **Professor David Ruzic** from University of Illinois Urbana-Champaign, USA, Department of Nuclear, Plasma, and Radiological Engineering, Director of the Center for Plasma Material Interactions with a citation "For pioneering work in magnetron sputtering development and the use of liquid lithium in fusion technology."

David Neil Ruzic is an Emeritus Professor in the Department of Nuclear, Plasma and Radiological Engineering at the University of Illinois at Urbana-Champaign where he joined the faculty in 1984 after receiving his PhD in Physics from Princeton University and post-doctoral work at the Princeton Plasma Physics

Laboratory. His research centers on the interaction of plasmas with materials. He is a Fellow of the American Nuclear Society, a Fellow of the American Vacuum Society, a Fellow of the American Physical Society, and a Fellow of the International Society for Optics and Photonics (SPIE). In 2017, he headed the effort to bring a mid-sized hybrid stellarator / tokamak to Illinois, now called HIDRA, capable of 1 Tesla fields with a minor radius of 19 cm and a major radius of 72 cm. In 2020, he founded the Illinois Plasma Institute located on the UIUC Research Park, which is funded by industry to do translational research. Also, in 2020 he won the International Gaede-Langmuir award from the AVS and the Fusion Technology Prize from IEEE. In 2024 he was awarded the University of Michigan Plasma Prize and in 2025 was awarded the International Award in Technology from IUVSTA. He has published over 235 referred journal papers, 2 books, and 6 book chapters and has been awarded 12 patents. He has produced 38 PhD students and 61 thesis MS students. While no longer teaching (since 2024), he has otherwise failed at retirement. His current group consists of 1 postdoc, 16 graduate and 25 undergraduate research assistants.

The award ceremony will take place at the International Vacuum Congress (<https://ivc23.org/>) in Sydney, Australia, from September 15 to 19, 2025 where David Ruzic will present an Honorary Lecture.
