

Biography

Dr. Paul de la Houssaye's career exemplifies the Sigma Xi tradition of sustained scientific achievement, interdisciplinary inquiry, mentorship, and service to the broader scientific community.

Education, Training, Experience

- B.S., Applied Physics, California Institute of Technology
- M.S. & Ph.D., Applied Physics, Stanford University
- Postdoctoral Research, Resonant Tunneling Devices & X-Ray Mask Fabrication, CNRS Laboratoire de Microstructures et de Microélectronique, Paris, France.
- Naval Information Warfare Center Pacific (San Diego, CA), 36 Years

Publications, Patents, Impact

- 22 U.S. Patents, 53 publications, two book chapters
 - h-index of 17 and i10-index of 29 (before management focus).
Excellent for non-academic/government labs where publications are not required or strongly encouraged.

Advancing Science and Technology

Beyond his individual research contributions, Dr. de la Houssaye has played an extensive role across government, academia, and industry, with multiple outreach activities.

- US Department of Defense
 - Technical expert, program advisor, contracting officer representative for DARPA, ONR, IARPA, and other DoD agencies, active at tech transfer.
 - One year at PMW-170 as S&T Coordinator/ONR Integrated Topside Program Liaison
 - Founded and led initiative that substantially increased recruitment of Ph.D. scientists to NIWC PAC

- Multiple awards including Paper of the Year, Navy Meritorious Civilian Service Award

Academia

- University of California San Diego
 - Mentored and Co-advised Graduate Students
- San Diego State University
 - Taught course in device physics
- Science Organizations, Leadership and Membership
 - Sigma Xi
 - President, San Diego Chapter, present; Full Member since 1988; Emeritus Member
 - IEEE
 - Senior Member (Nominated for Fellow Status)
 - Chair, San Diego Photonics Chapter, 2018 -2022, 2026
 - Chair, San Diego Broadcast Society Chapter, 2026
- Outreach
 - Coach & Organizer for First[®] Lego[®] League Robotics Team at Dana Middle School
 - Coach/Mentor & Organizer Point Loma High/Corriea Middle School First[®] Tech Challenge Team
 - Multiple other Science Outreach activities to elementary and pre-schools, including LN₂ Ice Cream, Potato Batteries, etc.
 - California State Science Fair Judge

Research Expertise

Dr. Paul de la Houssaye's career has spanned more than four decades doing or overseeing research covering a wide breadth of scientific areas from semiconductor physics, microelectronics, photonics, nanotechnology, superconductors, microfluidics and MEMS, medical devices, and emerging computational technologies.

Among his notable scientific accomplishments are the fabrication of silicon-based FETs (silicon-on-sapphire/SOS) demonstrating exceptionally high power-gain

frequency and low noise, a leading bandwidth result for silicon distributed amplifiers, demonstrations of microwave circuits in silicon-on-sapphire, the first monolithic integration of high-temperature superconducting devices with CMOS, and early experimental evidence of electrical activation of boron in diamond. His SOS work became the basis for the product line of Peregrine Semiconductor, becoming wildly successful with chips in virtually every TV and in multiple satellite systems. Recent record breaking diamond devices built on his first measurement of successful doping in diamond and the subsequent fabrication of a diamond based FET. Both these achievements have resulted in being nominated for IEEE Fellow Grade. More recently, his research has explored noise-driven nonlinear systems and low-power computational architectures for pattern recognition and artificial intelligence, including work demonstrating XOR functionality using coupled nonlinear dynamical systems.

Dr. de la Houssaye enjoys playing violin in various orchestras and playing in small groups, lately playing Irish folk songs, as well as hobnobbing with German, French, and Polish speaking friends, and working on his beautiful 100+ year old house.