

***MULTIFUNCTIONAL FLAT OPTICS: TRANSLATING SCIENTIFIC INNOVATION
INTO COMMERCIAL TECHNOLOGY***

MAY 14 • BRK 1001 • 10:00-11:00 A.M.

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Flat optical systems based on metasurfaces are transforming the way light is manipulated by integrating imaging and sensing within a single ultrathin platform. This talk follows the journey from fundamental advances in nanophotonics, to real-world integration in smartphones.

Federico Capasso holds a Doctor of Physics degree from the University of Roma, La Sapienza. He is the Robert Wallace Professor of Applied Physics at Harvard University, which he joined in 2003 after 27 years at Bell Labs, the premier industrial laboratory, where his career advanced from postdoctoral fellow to Vice President for Physical Research. His contributions span a broad range of topics from science to applications, in the areas of optics, artificial designer materials and nanotechnology, including the invention of the quantum cascade laser; metaoptics; Casimir forces including the first measurement of the repulsive one. He is a co-founder and board member of Metalenz, which commercializes flat lenses for the consumer electronics market, and of EOS Photonics, now part of Pendar, focused on chemical sensing with quantum cascade lasers. He is a 2023 Citation laureate for physics of the Institute for Scientific Information (ISI), which recognizes an exceptional citation record within the Web of Science. He is a member of the National Academy of Sciences, the National Academy of Engineering, the National Academy of Inventors, the American Academy of Arts and Sciences and the Accademia dei Lincei. His awards include the Balzan Prize, the King Faisal Prize for Science, the Ives Medal of Optica, the Robert Wood Prize of Optica, the IEEE Edison Medal, the IEEE David Sarnoff Award, the Enrico Fermi Prize, the Arthur Schalow Prize of the American Physical Society, the Material Research Society Medal. He holds honorary doctorates from Lund University, Diderot University, the University of Bologna and University of Roma, Tor Vergata. He is a fellow of Optica, IEEE, SPIE, APS and AAAS.