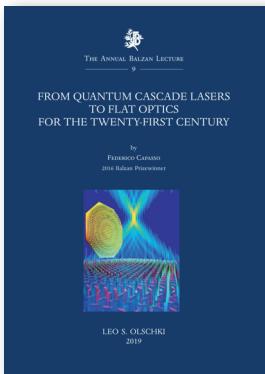


FEDERICO CAPASSO

FROM QUANTUM CASCADE LASERS TO FLAT OPTICS FOR THE TWENTY-FIRST CENTURY

Federico Capasso has long been acknowledged as a pioneer in the fields of semiconductors and lasers. In particular, his seminal work on the quantum cascade (QC) laser revolutionized infrared science and technology. In the ninth Annual Balzan Lecture, “From Quantum Cascade Lasers to Flat Optics for the Twenty-First Century”, Capasso gives an overview of his career, from his early post-graduate studies in the United States, to the years of research at Bell Laboratories, and finally, his current position at the Harvard



School of Engineering and Applied Sciences, where he continues to do cutting-edge research in the field of light technologies in addition to managing a full load of innovative teaching activity. The lecture highlights the QC lasers and their wide-ranging applications in chemical sensing, medical diagnostics, spectroscopy and trace gas analysis. Capasso also comments on his recent work on flat lenses and heterostructures, which are also the subject areas of his Balzan research project involving young researchers.

La ‘tecnologia della luce’ è una disciplina trasversale nel ventunesimo secolo e Federico Capasso, fra i primi a dimostrare le capacità del laser a ‘cascata quantica’, è uno dei principali studiosi del campo. Nella nona Annual Balzan Lecture, ‘From Quantum Cascade Lasers to Flat Optics for the Twenty-First Century’, l’autore propone un interessante resoconto della propria attività scientifica, attraverso l’illustrazione delle sue invenzioni nel campo delle ottiche e delle loro applicazioni, che vanno dalla spettroscopia alla diagnostica in campo medico.

FEDERICO CAPASSO was awarded the Balzan Prize for Applied Photonics in 2016. He embarked on a career lying at the interface between applied and basic solid-state science in 1977 at Bell Labs, where he began as a member of the technical staff, to later become Vice President of Physical Research from 2000 to 2003. He moved on to his current position as Robert L. Wallace Professor of Applied Physics at Harvard University in Cambridge, Massachusetts, thus adding university teaching to a long career of cutting-edge research. With more than 300 papers published and over 40 US patents to his name, Capasso’s contributions to heterostructure devices and materials are universally recognized as highly creative and influential.

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CASA EDITRICE
Casella postale 66 · 50123 Firenze
info@olschki.it · pressoffice@olschki.it

Tel. (+39) 055.65.30.684



LEO S. OLSCHKI
P.O. Box 66 · 50123 Firenze Italy
orders@olschki.it · www.olschki.it

Fax (+39) 055.65.30.214