PAUL SCHERRER INSTITUT

INVITATION
PHOTON SCIENCE SEMINAR

Date: Tuesday, 30 May 2023

Time: 11h15 (coffee at 11h00)

Location: WBGB/019

Dear all,

You are cordially invited to the following Photon Science Seminar:

Atoms to applications and the future of electronics

by Prof. A. F. J. Levi

University of Southern California, U.S.A.

Abstract:

2022 may have been the year of the chip, but what of the future? The commonly adopted ad-hoc and incremental search for new materials, devices, and application-specific functionality should be replaced by automated methods. While system synthesis and manufacturing tools capable of full-stack optimal design and implementation from atoms to applications remains an elusive objective, my talk will provide examples of some elements necessary to achieve such a goal. This includes discovering material properties and geometries at the device level, the special role of symmetries, level of abstraction, selection of architecture for the application, and the co-evolution of system design with low-latency manufacturing. And there are, as I hope to show, many exciting opportunities for new perspectives and understanding along the way.

Tony Levi is Professor and Chair of Electrical and Computer Engineering – Electrophysics at the University of Southern California. He joined the faculty in mid-1993 after working for almost 10 years at AT&T Bell Laboratories, Murray Hill, New Jersey. He invented hot electron spectroscopy, discovered ballistic electron transport in heterostructure bipolar transistors, demonstrated room temperature operation of unipolar transistors with ballistic electron transport, created the first microdisk laser, and carried out work in optimal design of small electronic and photonic systems. His current research interests include device physics at the classical-quantum boundary, system engineering and integration, high-performance electronics, and optimization in system design.

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