



Prof. David S. Citrin

School of Electrical and Computer Engineering,
Georgia Institute of Technology, Atlanta,
Georgia 30332-0250, USA.

Email: david.citrin@ece.gatech.edu

Georgia Tech-CNRS UMI2958,
Georgia Tech Lorraine,
2 rue Marconi,
57070 Metz, France.

TOPIC:

Nanoplasmonics: A Platform for Photonic Integration

ABSTRACT:

Nanoplasmonics exploits photonic properties of metal nanostructures, and includes sensors, nanoscale lasers, and light-guiding and concentrating structures. In this talk is provided an overview of nanoplasmonics in the context of the rich variety of optical functionalities possible together with a consideration of how these might be coupled with existing electronic and optoelectronic devices. We begin with a brief introduction to the physical basis of plasmonics, and then discuss applications.

PROFILE:

I. Education

- 1985 **Williams College**, Massachusetts - B.A. *Cum Laude*, Honors in Physics
- 1987 **University of Illinois at Urbana-Champaign** - M.S. in Physics
- 1991 **University of Illinois at Urbana-Champaign** - Ph.D. in Physics

II. Academic Background

- 1987-1991 **University of Illinois at Urbana-Champaign** teaching assistant, research assistant
- 1992-1993 **Max Planck Institute for Solid State Research, Stuttgart, Germany** Post-doctoral Fellow
- 1993-1995 **Center for Ultrafast Optical Science, University of Michigan** Center Fellow
- 1995-2001 **Department of Physics, Washington State University, Pullman, WA** Assistant Professor of Physics (Tenured 2001)
- 2001-2007 **School of Electrical and Computer Engineering, Georgia Institute of**

- 2006-present **Technology** Associate Professor of Electrical and Computer Engineering
Georgia Tech-CNRS UMI-2968, Metz, France, Project Coordinator for Chaos-Based Communications
- 2007-present **School of Electrical and Computer Engineering, Georgia Institute of Technology** Professor of Electrical and Computer Engineering

III. Current Research Projects

Nanophotonic Integration: Design, fabrication, and demonstration of photonic nanostructures, silicon photonics, nanoplasmonics, photonic crystal devices

Nonlinear Dynamics of External Cavity Semiconductor Lasers: Chaos communications, high-bit-rate random-number generation for quantum-key distribution

Terahertz Science and Technology: Imaging and chemical detection for security, aerospace, automotive, pharmaceutical, and energy; nondestructive evaluation

IV. Accomplishments

- 1997 Recipient of grant under the **Young Investigator Program (YIP)** of the US Office of Naval Research
- 1997 Recipient of a **Presidential Early Career Award for Scientists and Engineers (PECASE)**
- 2003 Senior Member, IEEE
- 2005 Recipient of a **Friedrich Bessel Prize**, Alexander von Humboldt Stiftung, Germany

David S. Citrin received the MS and PhD in Physics from the University of Illinois in Urbana in 1987 and 1991 respectively, following which he was a post-doctoral research fellow at the Max Planck Institute for Solid State Research in Stuttgart, Germany (1992-1993) and at the Center for Ultrafast Optical Science at the University of Michigan (1993-1995). From 1995 to 2001 he held faculty position with the Department of Physics at Washington State University, and in 2001 he joined the School of Electrical and Computer Engineering at the Georgia Institute of Technology where he is presently a Professor. His research interests include nanophotonic integration, the nonlinear dynamics of semiconductor lasers, and terahertz science and technology. Prof. Citrin is a recipient of a Presidential Early Career Award for Scientists and Engineers (US) and of a Friedrich Bessel Prize from the Alexander von Humboldt Stiftung (Germany). Currently, Prof. Citrin splits his time between the Atlanta campus of Georgia Tech and the French campus, Georgia Tech Lorraine where is Project Coordinator on Chaos-Based Communications.