IEEE Central Coast Event – 20 November 2019 @ 6PM

Distinguished Professor John Bowers Ph.D. – UCSB

Director, Institute of Energy Efficiency Presents:

Using Photonics to Make More Energy Efficient Data Centers & Communications

FREE EVENT

Location – Rusty's Pizza

5934 Calle Real, Goleta, CA 93117

6:00 PM – Complimentary Pizza, Salad, Beverage

6:25 PM – Central Coast Status

6:30 PM – Professor Bowers' Presentation

Please REGISTER for EVENT -

https://events.vtools.ieee.org/event/register/207948

Using Photonics to Make More Energy Efficient Data Centers & Communications

Photonics can reduce energy consumption in information processing and communications while simultaneously increasing the interconnect bandwidth density. The energy consumption in data centers is shifting from logic operations to interconnect energies. Without the prospect of substantial reduction in energy per bit communicated, the exponential growth of our use of information is limited. The use of optical interconnects fundamentally addresses both interconnect energy and bandwidth density, and is the only scalable solution to this problem. With the use of photonic integration and fiber optics, and the elimination of electrical line charging dissipation, we can save power by transmitting data from 1 mm to 1 km with the same energy (20 fJ/bit) and simplicity as local electrical wires on chip. A focus of our research is on using quantum dot (QD) lasers and integration on silicon for lower threshold and higher efficiency sources, higher temperature operation, isolator free operation, and superior mode locking capability. A recent example includes a 4.1 Tbps, 60 wavelength, 32 Gbaud PAM-4 transmitter using a single mode locked quantum dot laser.

Distinguished Professor John E. Bowers Ph.D.

John Bowers is Director of the Institute for Energy Efficiency and a professor in the Departments of Electrical and Computer Engineering and Materials at the University of California, Santa Barbara. His research interests are primarily concerned with silicon photonics, optoelectronic devices, optical switching and transparent optical networks and quantum dot lasers. Bowers received the M.S. and Ph.D. degrees from Stanford University and then worked for AT&T Bell Laboratories before joining UCSB. Bowers is a fellow of the IEEE, OSA and the American Physical Society, and a recipient of the IEEE Photonics Award, OSA/IEEE Tyndall Award, the IEEE LEOS William Streifer Award and the South Coast Business and Technology Entrepreneur of the Year Award. He is a member of the National Academy of Engineering and the National Academy of Inventors.