Curriculum Vitae

Prof. Vanessa Wood

Assistant Professor for Nano-Photonics and Electronics
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Degrees/Higher Education

2010	PhD, Electrical Engineering Massachusetts Institute of Technology
2005	Bachelor of Science, Applied Physics Yale College

Professional Career

2011 - present	Assistant Professor Laboratory for Nanoelectronics, Head Institute for Integrated Systems ETH Zürich
2010-2011	Postdoctoral researcher Department of Materials Science and Engineering Massachusetts Institute of Technology

Honors and Awards

- 2010 MIT Microsystems Technology Laboratory Dissertation Award
- 2008 Materials Research Society Graduate Student Award

Teaching

- Solid State Electronics (HS)
- Organic and Nanostructured Electronics (FS)

Personnel

Scientific coworkers	Mario Mücklich
Non-scient. coworkers	Christine Haller
Diploma/BA/MS projects	Felix Geldmacher Jonas Güresis Marie Francine Lagadec Weyde Lin
Doctoral students	Deniz Bozyigit Martin Ebner Thomas Egerer Olesya Yarema

Facilities and Major Equipment

- Optoelectronics Laboratory (D-floor ETZ, ETH Zentrum)
  - Fume hoods and gloveboxes for nanoparticle synthesis
  - Thin film deposition and characterization
  - Optical and electronic spectroscopy
  - Solar cell and LED testing setups

- Energy Storage Laboratory (Binnig and Rohrer Nanotechnology Center, Rüschlikon)
  - Access to 950 sq. meter clean room and noise free laboratories, jointly operated by IBM Zürich Research and ETH.
  - 100 sq. meters of laboratory space with dryboxes for lithium ion battery assembly and testing

For more information visit www.lne.ee.ethz.ch

Prof. Vanessa Wood - Research Highlights

Laboratory for Nanoelectronics

Keywords

- Nanomaterials
- Energy

Future priority areas

- Understanding charge transport in disordered materials
- Novel device concepts for solar cells, batteries, and LEDs

Focus

The Laboratory for Nanoelectronics investigates the potential of nanoscale materials in electronic devices at each point in the energy life-cycle: collection, storage, and usage. Using a combination of experiment and theory, we study the fundamental electronic properties of nanoscale materials and apply our findings to the rational design of devices that harness the novel form factors and properties provided by nanomaterials. We focus on the design and fabrication of nanosystems for devices including solar cells, batteries, and efficient LEDs. Guided by insights from proof-of-concept devices, we also investigate methods for commercial production of the devices, with particular focus on the development of novel techniques for industrial-scale materials growth and deposition.

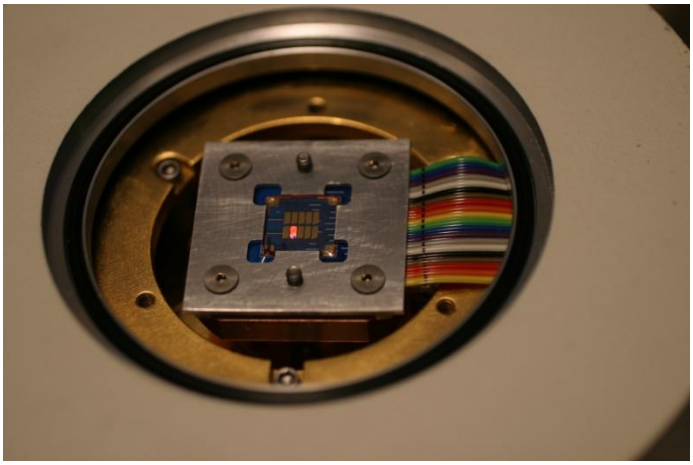

Figure 1
Colloidal quantum dot (QDs) have optical properties that make them attractive for LED and solar cell applications. Here we study the dynamics of charge transport and recombination in CdSe QD-based thin films using a capacitive device structure. Device is located in a cryostat to enable temperature-dependent studies.

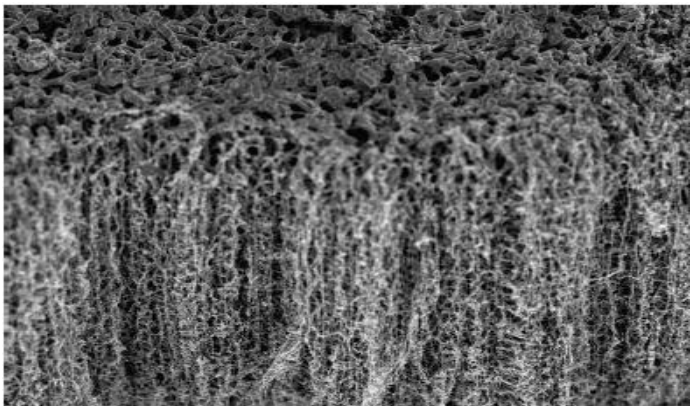

Figure 2
Vertically aligned multi-wall carbon nanotube arrays coated in TiO_2 on a conductive substrate for 3D electrodes in battery, capacitor, and solar cell applications. This work is done in collaboration with Prof. Hyung Gyu Park (MAVT) and is funded by the Materials Research Center at ETH.

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