

# Vladimir I. Merkulov

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## Education

**1997** Ph.D. in Physics, THE PENNSYLVANIA STATE UNIVERSITY  
GPA: 3.8/4.0

**1992** B.S./M.S. in Computational Physics, ST. PETERSBURG STATE UNIVERSITY, Russia; GPA: 3.8/4.0

## Professional Experience

2000-present *Research Staff Member*, Oak Ridge National Laboratory, Engineering Science and Technology Division  
- Development of nanostructured materials (with emphasis on carbon nanotubes and nanofibers) for various applications.

1997-2000 *Postdoctoral Research Associate*, Oak Ridge National Laboratory, Solid State Division  
- Growth, characterization, and industrial applications (with emphasis on electron field emission for flat panel displays and related technologies) of semiconductors, thin films, and nanostructures. Includes design/fabrication of prototype field-emitting structures and properties measurements.

1993-1997 *Graduate Research Assistant*, The Pennsylvania State University, Department of Physics  
- Fabricated various thin and ultrathin films including mechanical and optical coatings and investigated their properties using a number of characterization techniques.

1992-1994 *Graduate Teaching Assistant*, The Pennsylvania State University, Department of Physics  
- Taught 200-level physics lab to 60-80 students a week. Received excellent student evaluations.

## Technical skills

- Designed and fabricated thin films and nanostructures using various deposition techniques, such as
  - Chemical Vapor Deposition (CVD), dc and microwave Plasma Enhanced CVD (PE-CVD)
  - rf and dc magnetron sputtering
  - Evaporation
  - Pulsed Laser Deposition (PLD)
  - Ion Beam Assisted Deposition (IBAD)
- Analyzed materials using numerous characterization techniques, including
  - Raman Scattering (RS) and Infra Red (IR) Spectroscopies
  - Scanning Electron Microscopy (SEM) and Energy Dispersive X-ray Spectroscopy (EDX)
  - Atomic Force Microscopy (AFM)
  - High Resolution Electron Energy Loss Spectroscopy (HREELS)
  - Transmission Electron Microscopy (TEM) and EELS
  - Auger Electron and X-ray Photoelectron Spectroscopies (AES and XPS)
  - Field Emission Measurements
  - Ellipsometry

## Professional Affiliations and Activities

- Materials Research Society, Member
- Served as a reviewer for *Physical Review*, *Applied Physics Letters*, *Journal of Applied Physics*, *Journal of Vacuum Science and Technology*, *Diamond and Related Materials*, *Journal of Physical Chemistry*, *Thin Solid Films*, *Solid State Electronics*, and *Proceedings of The Materials Research Society*.

## Publications, Presentations, and Patents

- 35 publications in leading scientific journals and conference proceedings.
- 22 presentations at national and international conferences.
- 4 pending patent applications.