Bipin Bihari

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Professional Experience

- **2004-Present**. Argonne National Laboratory
  - Designing fiber optic laser delivery for a laser based ignition application in a large bore multi-cylinder reciprocation natural gas engine
  - Developing optical diagnostics techniques for natural gas engines
  - Using laser induced breakdown spectroscopy as a diagnostic tool in engines
- **1997-2003**. Sr. Scientist/Small Business Innovation Research (SBIR) Program manager, Omega Optics, Inc./Radiant Photonics, Austin, Texas/ Microelectronics Research Center, University of Texas-Austin, Texas
  - Managed a group of Ph.D. level scientists and engineers at Radiant Photonics, Inc. and oversaw the smooth functioning of sponsored projects
  - Conducted, managed, and directed SBIR programs including principal investigator/project manager, proposals, and report preparation
  - Designed and developed devices for optical, electro-optical, fiber-optic and optoelectronic applications
  - Demonstrated bi-directional data-communications using the 32-channel free-space wavelength-division multiplexing devices, laser transceivers, and optical fibers
- **1995-1997**. Virginia Polytechnic Institute and State University, Blacksburg, Virginia
  - Studied nano-phase materials for phosphor applications
  - Performed physical characterization including crystalline phases, sizes, and shapes of nano-materials produced under different synthesis parameters using X-ray diffraction and transmission-electron microscopy
  - Studied spectral behavior of nano-crystals laser fluorescence, time resolved, and excitation spectroscopic methods
- **1994-1995**. Illinois Institute of Technology, Chicago, Illinois and Chemical Division; Argonne National Laboratory; Argonne, Illinois
  - Created a new, state-of-the-art, laser assisted experimentation laboratory to perform second and third order nonlinear optical experiments on organic and polymeric materials
- **1992-1994**. Department of Physics, University of Massachusetts-Lowell, Lowell, Massachusetts
  - Performed experiments, analyzed results, and studied barium titanate thin-films and liquid crystals for optical frequency doubling, novel asymmetric polydiacetylenes for second and third order nonlinear optics

    - Developed fiber-optic biosensors
- **1988-1992.** Center for Laser Technology, Indian Institute of Technology, Kanpur, India
    - Established a high-resolution laser spectroscopy and nonlinear optics laboratory
    - Successfully built a vertical-cavity argon-ion pumped dye-laser
    - Carried out computer interfacing and automation of experimental set-ups
    - Designed and performed nonlinear optics experiments
    - Performed optical diagnostics of biological samples
    - Supervised graduate and undergraduate students
- **1981-1988**. Department of Physics, Indian Institute of technology, Kanpur, India
    - As a doctoral student, performed spectroscopic studies of rare earth doped single crystals that included optical absorption, laser-induced fluorescence, and excitation spectroscopy and performed extensive computer programming and theoretical simulation to analyze the results of the experiments
    - Taught several college-level lab courses in physics

Education

- PhD, Indian Institute of Technology Kanpur, India, 1989
- MSc, Kanpur University, Kanpur, India, 1980

Awards

- National Merit Scholarship, Government of India (1974-78)

Professional Memberships

- Materials Research Society
- American Chemical Society
- SPIE- The International Society of Optical Engineers
- IMAPS- International Microelectronics and Packaging Society

Workshops and Conferences

- Sessions Chair at Optoelectronics ’99, & 2000 Photonics West (SPIE-conferences)
- Invited paper at International Symposium on Image Processing Molecular Systems (IPMS ’98), Japan High Polymer Center, Tsukuba, JAPAN, MAR. 9-10, 1998
- Participated in 16+ conferences and symposiums as a speaker and delegate

Publications

- 58+