Nattamai S. P. Bhuvanesh Ph.D.

Manager, X-ray Diffraction and Magnetic Measurements Laboratory
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Professional Summary

- Experienced, versatile and innovative chemist with extensive knowledge in materials synthesis, crystallography, and other characterization techniques.
- Good problem solver, proven ability to design, and apply new methods to problems of current interest.
- More than ***thirty years*** of experience in competitive research environments with excellent written and oral communication skills.
- Ability to work as part of a team in both supervisory and participatory roles.
- Proficient in many languages including English, Hindi and Tamil; exceptional interpersonal skills

Education

Ph. D. (Materials Chemistry) Indian Institute of Science, Bangalore 1991-1997

M. Sc. (Chemistry) American College, Madurai, India 1989-1991

Work Experience

Texas A&M University, College Station, TX 2003-present
Manager, X-Ray Diffraction and Magnetic Measurements Laboratory

- Powder and single crystal diffraction specialist; Have solved more than ***2000 structures*** from single crystal and polycrystalline materials
- Developed novel technique for convenient data collection for powder X-ray diffraction with very small samples (μg to ng)
- Consultant for several industries including Bruker AXS, Inc. for diffraction needs.
- Determined structures collaborating with a number of faculties from small universities with no X-ray diffraction facilities
- Assisted in teaching graduate level X-ray diffraction course
- Responsible for operation and maintenance, including hardware and software, of five single crystal, five powder diffractometers, and two SAXS instruments; total cost over $ 4.5 million.
- Responsible for the Quantum Design MPMS3 SQUID magnetometer with closed cycle Helium cryosystem.

Ohio State University, Columbus, OH. Department of Chemistry 2001- 2002
Research Associate

University of Houston, Houston, TX. Department of Chemistry 1999-2001
Postdoctoral Research Fellow

Université du Maine, Le Mans, France. Laboratoire des Fluorures 1997-1999
Postdoctoral Research Associate

Technical Skills

- Extensive experience in Powder and Single crystal diffraction techniques, related instrumentation, and associated software
- Responsible for the Magnetic Property Measurement System (MPMS3) from Quantum Design with closed cycle He-cryosystem
- Demonstrated experience in several crystallographic software for *identification* (EVA, JADE), *structure solution* (SIRware, APEX3/SHELX, DASH, TOPAS, FOX, etc.), *structure refinement* (Olex2, SHELX, TOPAS, GSAS, FULLPROF, etc.) and *structure presentation* (Olex2, Diamond, X-seed, X-shell, etc.).
- Worked on performance and maintenance of several PC, UNIX and LINUX systems. Have setup a NAS system for scheduled large data backup
- Established knowledge in soft chemical and conventional methods for synthesis of ceramic and oxide materials
- Expertise in normal and supercritical hydrothermal synthesis of open framework and 3-D materials
- Hands on experience in analytical techniques: Thermal methods TGA, DSC, and DTA
- Working knowledge in microscopic techniques such as scanning and transmission electron microscopy.
- Skilled in handling air-sensitive materials and vacuum devices

Achievements and Recognitions

- Elected Member, U.S. National Committee for Crystallography (2018-2021)
- Authored or coauthored nearly *400 scientific papers* in internationally recognized journals
- *Virtual instructor* for "Practical Powder X-ray Diffraction Course", Bruker-AXS Inc. and Conducted yearly *TOPAS Spotlight* Series workshops
- *Consultant* for leading manufacturer of X-ray diffraction instruments, Bruker-AXS Inc. for X-ray diffraction application needs.
- *Consultant* for analytical XRD applications in several pharmaceutical, petrochemical and soil industries
- Co-edited and coauthored *major books* on powder diffraction
- *Invited Faculty*: American Crystallographic Association - Summer School on Small Molecule Crystallography (Indiana University at Pennsylvania), Indiana, PA, 2004
- *Co-organizer* of the 2005 ACA workshop on Structure Solution and Refinement of difficult structures using powder diffraction
- Sudborough Medal and Cash Price for Best Thesis Award, 1997-1998
- Research Associate Fellowship, CNRS, France, 1998-1999
- Region des Pays de la Loire Fellowship, France, 1997-1998
- National predoctoral Senior Research Fellowship, CSIR, New Delhi, 1994-1996
- National predoctoral Junior Research Fellowship, Bangalore, India, 1991-1994
- Full Member, Sigma-Xi, 2005-2006