

Nattamai Bhuvanesh Ph.D.

Manager, X-ray Diffraction and Magnetic Measurements Lab
Department of Chemistry, Texas A&M University, College Station, TX 77843

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.
- Nearly *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. (Solid State and Materials Chemistry), 1991-1997

Indian Institute of Science, Bangalore, India

M. Sc. (Chemistry) 1989-1991

American College, Madurai, India

B. Sc. (Chemistry) 1986-1989

Sourashtra College (Madurai Kamaraj University), Madurai, India

Work Experience

Texas A&M University, College Station, TX

2003-present

Manager, X-Ray Diffraction Laboratory

- Powder and single crystal diffraction specialist; Have solved more than 1700 crystal 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 six single crystal, four powder diffractometers, and two SAXS instruments; total cost over \$ 4.5 million.
- Responsible for the MPMS3 SQUID magnetometer.

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

2001- 2002

- Designed and installed new instrument for high temperature impedance spectroscopic analysis
- Synthesized novel layered perovskites by *Chimie-Douce* methods and characterized from ambient and high temperature powder X-ray and neutron diffraction analysis

University of Houston, Houston, TX. Department of Chemistry
Postdoctoral Research Fellow

1999-2001

- Worked in the setting up of a new solid state chemistry laboratory
- Synthesized several novel open framework materials, and SHG active compounds and characterized by single crystal and powder X-ray diffraction

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

1997-1999

- Co-managed Materials Research Center's X-ray diffraction facility
- Synthesized several members of a new family of layered perovskites

Technical Skills

- Extensive experience in Powder and Single crystal diffraction techniques, related instrumentation, and associated software
- 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
- Familiarity in impedance, infrared (FTIR), ultraviolet, NMR spectroscopic techniques and NLO measurements
- Working knowledge in microscopic techniques such as scanning and transmission electron microscopy.
- Skilled in handling air-sensitive materials and vacuum devices

Computer Skills

- Experienced in several crystallographic software for identification (EVA, JADE), structure solution (SIRware, SHELXTL, DASH, TOPAS, FOX, etc.), structure refinement (Olex2, SHELXTL, 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.

Achievements and Recognitions

- **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
- **Published** more than 300 *scientific papers* in internationally recognized journals
- Co-authored and co-edited **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
- Member, American Crystallographic Association, 2003-2005
- Full Member, Sigma-Xi, 2005-2006