CURRICULUM VITAE

R. THANGAVEL
Associate Professor, Department of Physics,
Indian Institute of Technology (ISM),Dhanbad- 826004, Jharkhand, India
E-mail: rthangavel@iitism.ac.in
Phone: +91- 326 223 5916 (O);
https://iitism.irins.org/profile/97699

Experience:

- **Associate Professor** in Department of Physics, Indian Institute of Technology (ISM), Dhanbad-826 004, Jharkhand (**12.04.2021 to till date**)
- **Assistant Professor** in Department of Physics, Indian Institute of Technology (ISM), Dhanbad-826 004, Jharkhand (**02.07.2012 to 11.04.2021**)
- **Postdoctoral Research Fellow** in Department of Photonics, College of Electrical and Computer Engineering, National Chiao Tung University, 1001 University Road, Hsinchu, Taiwan 300, (ROC) (**01.04.2012 to 19.06.2012**)
- **Postdoctoral Research Fellow** in Research Center for Applied Sciences, Academia Sinica, Taipei 115, Taiwan (ROC) (**05.02.2009 to 31.03.2012**)
- **Council of Scientific Industrial Research - Senior Research Fellow (CSIR-SRF**) – Extended in Crystal Growth Centre, Anna university Chennai, Chennai-600 025, India (**18.07.2008 to 31.12.2008**)

Research interest /Areas:

- ✓ Optical spectroscopic studies on semiconductor nanostructures, Raman Spectroscopy, X-Ray Photoelectron Spectroscopy (core level and valence spectra), X- ray absorption spectroscopy, Photoelectrochemical impedance spectroscopy (PEIS)
- ✓ Methods for Synthesis and Fabrication of Nanomaterials (Sol-Gel Spin coating, Hydrothermal growth and Spray coating techniques)
- ✓ Hydrothermal Growth of undoped and doped ZnO nanorods on substrate (Glass, ITO/Glass and Si)
- ✓ Solar PV-PEC- Solar to Hydrogen (STH) production using tandem photoelectrodes
- ✓ Computational work: Wien2k (FP-LAPW), TB-LMTO for band structure calculations (Structural and Optical properties), X-ray diffraction analysis using FullProf suite program.

Expertise:

- Pulsed laser deposition (PLD), thermal chemical vapor deposition (Thermal –CVD) e-beam evaporation - Sol-gel process, hydrothermal technique and flux crystal growth technique
- Fabrication of hole transport layer (HTL) and electron transport layers (ETL).
- Chemical Synthesis of Quantum dots (QDS)- ZnO, ZnMgO, ZnO(Li,Na,K), CdSe, CdSe/ZnS, ZnCdS, Cu_2ZnSnS_4, $Cu_2ZnSnSe_4$, Cu_3SbS_4
- Realize p-type ZnO thin films and ZnO relative doping with group I & V elements.
- Specialty in Oxide related thin film growth such as PLD, as well as characterization, such as XRD, HALL EFFECT, SEM, PL, Micro-Raman & micro-PL- Spectroscopic Ellipsometry.
- Wien2k (FP-LAPW) and TB-LMTO for band structure calculations.

Equipment Handling & Analysis:

Sol-gel Spin coating and Hydrothermal process, Spray coating, Fume hood, Chemical synthesis (Quantum dots), Hall effect Measurement (6221, 2450 Keithley, Photoelectrochemical impedance spectroscopy (2450 Keithley), X-ray Photoelectron spectroscopy) PHI-5000 Versa Probe III)-Pulsed laser deposition (PLD) - X-Ray Diffraction (XRD - PANalytical) -X-ray fluorescence spectroscopy (XRF- PANalytical) Scanning Electron Microscope (FEI Nano nova 200) – Thermal & Electron beam evaporation (ULVAC and AST) – Micro- Photoluminescence and Raman measurements (Horiba Jobin Yvon HR-800 UV micro-PL and Raman set up) - Hall measurements under the Van der Pauw configuration - Hall effect system (Ecopia_HMS-5000), Spectroscopic ellipsometry (J.A. Woollam Co.)-, Keithley source meter 2450- Solar simulator – 100 mW/cm^2 white light source with air mass (A.M) 1.5 filter

Academic Qualification:

- July 2004 to July 2008: Doctor of Philosophy (Ph.D), thesis entitled "**Investigations on the technologically important wide bandgap II-VI ternary semiconductors, Crystal growth and characterisation of Zinc Oxide and alloy systems**" at Crystal Growth Centre, Anna University Chennai, Chennai, India.
- 2002-2003: Master of Philosophy (M.Phil-Theoretical Physics), First class with 72.39% (grade A^+), University of Madras, Chennai, India., M.Phil Project entitled " **Studies in Models for Interacting Populations"**
- 1997-1999: Master of Science (M.Sc.) (Physics), 72.33% marks with first class, National College, Bharathidasan University, Trichirappalli, India.
- 1994-1997: Bachelor of Science (B.Sc.) (Physics), 67.72% marks with first class, Govt. Arts College, Karur, Bharathidasan University, Trichirappalli, India.

List of research students project: - completed/ongoing

Students	Completed (No)	Ongoing (No)
Ph.D	14	07
M.Phil	02	---
M.Sc	26	02
B.Tech (Engg Phy)	13	01

Awards and recognitions:

- Junior Research Fellow (JRF), Department of Science and Technology (DST), New Delhi, India.
- Senior Research Fellow (SRF), Council of Scientific and Industrial Research(CSIR), New Delhi, India.
- Postdoctoral Research Fellowship, Research Centre for Applied Sciences, Academia Sinica, Taipei, Taiwan (ROC).
- Postdoctoral Research Fellowship, Department of Photonics, National Chiao Tung University, Hsinchu , Taiwan (ROC).

Personal Details:

Nationality : Indian
Date of Birth : 01 February 1977
Sex : Male
Marital Status : Married

Address for correspondence:

Associate Professor, Department of Physics,
Indian Institute of Technology (ISM), Dhanbad- 826004. Jharkhand, India

List of Publications:
https://scholar.google.co.in/citations?user=dJSAJvkAAAAJ&hl=en