DR. S. SARAVANAN

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CAREER OBJECTIVE

Seeking a research/academic position that will enable to conduct research in the frontier areas of materials science and to contribute the knowledge with results of high impact and quality

EDUCATION

- **Ph. D. in Physics** [November 2003] Department of Physics, Cochin University of Science and Technology Cochin - 682 022 India
  Thesis Title: SYNTHESIS AND CHARACTERIZATION OF SOME ORGANIC SEMICONDUCTORS AND INVESTIGATIONS ON THE EFFECT OF SWIFT HEAVY IONS ON THEIR PROPERTIES
- **M. Sc. Physics** [April - 1999] Dept. of Physics, Bharathidasan University Trichy 620 024 India Class: First class
- **B. Sc. Physics** [April - 1997] Thiru Vi Ka Government arts College, Tiruvarur Bharathidasan University Trichy 620 024 India Class: First class with Distinction

RESEARCH EXPERIENCE

- **Visiting Post Doctoral Fellow** [Apr 05 - Oct 05] School of Physical, Environmental and Mathematical Sciences, University of New South Wales at Australian Defence Force Academy ***[UNSW@ADFA]*** Canberra ACT 2600 Australia [*Advisor: Dr Heiko Timmers*]
- **Research Associate** [Sep 04 to Mar 05] Department of Metallurgy, Indian Institute of Science ***[IISc]*** Bangalore - 560 012 India [*Advisor: Prof Vikram Jayaram*]
- **Research Assistant** [Dec 03 - Aug 04] Department of Physics, Cochin University of Science and Technology **[CUSAT]** Cochin - 682 022 India [*Advisor: Dr M R Anantharaman*]
- **Research Fellow** [Aug 99 - Nov 03] Department of Physics, Cochin University of Science and Technology **[CUSAT]** Cochin - 682 022 India [*Advisors: Dr M R Anantharaman and Dr S Venkatachalam*]

AREAS OF INTEREST

- Synthesis and characterization of materials
- Conducting polymers
- Plasma Polymerization techniques
- Thin films [Polymer thin films, Semi Conducting thin films and Ceramic Thin films]
- Evaluation of optical, electrical, structural and thermal properties of materials
- Ion Beam modifications of materials/Thin films

FELLOWSHIPS

- Endeavor Australia Postgraduate and Postdoctoral Research Fellowships - Department of Education, Science and Training **[DEST]**, Government of Australia [2005]
- Research Associateship - Defence Research and Development Organization [**DRDO**], Government of India [2005]
- Research Associateship - Aeronautical Research and Development Board [**ARDB**], Government of India [2004]
- Senior Research Fellowship - Indian Space Research Organization [**ISRO-DOS**], Government of India [2002]
- Junior Research Fellowship - Indian Space Research Organization [**ISRO-DOS**], Government of India [1999]

COMPUTER SKILLS

- ***Operating Systems***: Windows - 98, NT, 2000, XP and Linux
- ***Languages***: BASIC, FORTRAN
- ***Packages***: Lab VIEW, Sigma Plot, Origin, MS Office
- ***Graphic Design Tools***: Adobe Photoshop, FrontPage

INSTRUMENTS FABRICATED

- RF Unit for Plasma Polymerization
- Dielectric/Conductivity Cell

PRACTICAL EXPERIENCE

- High Vacuum Thin Film Coating Unit
- AC Plasma Polymerisation coating Unit
- RF Unit for Plasma Polymerisation
- Flame Spray Pyrolsis Set up
- UV VIS NIR Spectrometer
- XRD [Rigaku C Max, Siemens, JEOL]
- Four Probe Conductivity Cell
- LCR Meter [HP 4285A, HP 4192A]
- Keithley [SMU 236 and 487]

PROJECTS COMPLETED

- SIMS studies on Indium Nitride thin films [Apr 05 - Oct 05]
- Synthesis and Characterization of YAG Films by Flame Spray pyrolysis [Sep 04 - Mar 05]
- Studies on the Effect of Swift Heavy Ions on Polymer Thin films [Dec 03 - Aug 04]
- Studies on Application of Conducting Polymers for Possible Devices [Aug 99 - Nov 03]
- Conformational Analysis of [1-4] Linked Arabinoses - Project of the M.Sc. Course
- Mössbauer Studies on heat-treated Ferromanganese Nodules - Internship of the Orientation Course conducted by IUC-DAEF Calcutta Centre, Calcutta.

REFERENCES

- ***Dr M R Anantharaman***, Reader, Department of Physics, Cochin University of Science and Technology, Cochin - 682 022 India Email: mra@cusat.ac.in Phone: +91484 2577404 Extn. 30
- ***Prof Vikram Jayaram***, Department of Metallurgy, Indian Institute of Science, Bangalore - 560 012 India Email: qjayaram@met.iisc.ernet.in Phone: +91 80 22933243

- ***Dr Heiko Timmers,*** Discipline of Physics, School of Physical, Environmental and Mathematical Sciences, University of New South Wales at the Australian Defence Force Academy Canberra ACT 2600 Australia Email: H.Timmers@adfa.edu.au Phone: +61 2 6268 8768
- ***Dr S Venkatachalam***, Scientist, Reliance Technology Centre, Reliance Industries Limited, B4, MIDC Industrial Area, PatalGanga, Raigad Dist, 410220 Email: Venkatachalam.Subbiah@ril.com Phone: 02192-307770, 09323654361
- ***Prof M Lakshmanan*** Head Department of Physics / Director Centre for Non Linear Dynamics / Dean Faculty of Science Bharathidasan University Tiruchirappalli - 620 024 India Email: lakshman@cnld.bdu.ac.in Phone: +91 431 2459386 [Off]
- ***Prof C P Girijavallaban*** Director Centre of Excellence in Lasers & Optoelectronics Sciences / Dean Faculty of Technology Cochin University of Science and Technology Cochin - 682 022 India Email: vallabhan@cusat.ac.in Phone: +91 484 2575848[Off]

PEER REVIEWED PUBLICATIONS

1. Effect of thermal annealing on $Fe_{40}Ni_{38}B_{18}Mo_4$ films: modified Herzer model for magnetic evolution: T Hysen, S Deepa, ***S Saravanan***, R V Ramanujan, D K Avasthi, P A Joy, S D Kulkarni M R Anantharaman - *J. Phys. D: Appl. Phys.* [In Press-2006]
2. Evidence for the Existence of Multiple Equilibrium States in Cobalt Phthalocyanine Tetramers: A Study by Dielectric Spectroscopy: S. Sagar, ***S Saravanan***, S. Suresh Kumar, S Venkatachalam, M R Anantharaman - *J. Phys. D: Appl. Phys.* [In Press-2006]
3. Investigations on Polyaniline Doped with Camphor Sulphonic Acid: ***S Saravanan***, C Joseph Mathai, M R Anantharaman, P V Prabhakaran S Venkatachalam - *J Phys. and Chem. Solids* [In Press-2006]
4. Photoluminescence studies on Pristine and Swift Heavy Ion Irradiated Plasma polymerised polymer thin films: ***S Saravanan***, C Joseph Mathai, M R Anantharaman, S Venkatachalam, D K Avasthi, F Singh - *Synth. Met.* 155 (2005) 311-315
5. Low k thin films based on RF plasma polymerised aniline: ***S Saravanan***, C Joseph Mathai, M R Anantharaman, S Venkatachalam - *New Journal of Physics* 6 64 (2004)
6. Thermal characterization of doped Polyaniline and its composites with CoPc: Sajan D George, ***S Saravanan***, M R Anantharaman, S Venkatachalam, P Radhakrishnan, V P N Nampoori, C P G Vallabhan - *Phys. Rev. B* Vol 69 Iss 23 (2004) 235201- 235205
7. Dielectric and conductivity studies on tetrameric cobalt phthalocyanines: ***S Saravanan***, C Joseph Mathai, M R Anantharaman, S Venkatachalam, P V Prabhakaran - *J. appl. Polym. Sci.* Vol 91 Issue 4 (2004) 2529-2535
8. Conduction mechanism in plasma polymerised aniline thin films: C Joseph Mathai, ***S Saravanan***, M R Anantharaman, S Venkatachalam, S Jayalekshmi - *Mat. Letts.* Vol 57 Issue 15 (2003) 2253 - 2257
9. Effect of iodine doping on the bandgap of plasma polymerized aniline thin films: C Joseph Mathai, ***S Saravanan***, M R Anantharaman, S Venkatachalam, S Jayalekshmi - *J. Phys. D: Appl. Phys.* 35 (2002) 2206 - 2210
10. Characterization of low dielectric constant polyaniline thin film synthesized by ac plasma polymerization technique: C Joseph Mathai, ***S Saravanan***, M R Anantharaman, S Venkatachalam, S Jayalekshmi - *J. Phys. D. Appl. Phys.* Vol 35 (2002) 240 - 245

MANUSCRIPTS UNDER REVIEW/PREPARATION

11. Thermal characterization of $Y_3Al_5O_{12}$ and Y_2O_3 - ZrO_2 Films using Photo Acoustic Technique: ***S Saravanan***, Vikram Jayaram, M Paulraj, S Asokan [Communicated to *Mat. Sci. and Engg. B*]
12. On the Structural and Electrical Properties of Tetrameric Cobalt Phthalocyanine and Polyaniline Composites: ***S Saravanan***, M R Anantharaman, S Venkatachalam [Communicated to *Mat. Sci. and Engg. B*]
13. Effect of Swift Heavy Ions on the Structural, Optical and Electrical Properties of RF Plasma Polymerised Aniline Thin Films: ***S Saravanan***, C Joseph Mathai, M R Anantharaman, S Venkatachalam, D K Avasthi, F Singh [Communicated to *Thin Solid Films*]
14. Effect of Swift Heavy Ions on the Structural and Optical Properties of RF Plasma Polymerized furfural Thin Films: ***S Saravanan***, C Joseph Mathai, M R Anantharaman, S Venkatachalam, D K Avasthi, F Singh [*to be Communicated*]
15. Calibration of Secondary Ion Mass Spectrometry of RF-sputtered Indium Nitirde Thin films with elastic recoil detection Analysis: ***S Saravanan***, Heiko Timmers, Santhosh K Shresta, K. Scott A. Butcher, Marie Wintrebert-Fouquet, Armand J Atanacio [*To be communicated*]

CONFERENCE PRESENTATIONS

1. Thermal Characterization of YAG thin films using Photo acoustics: ***S. Saravanan***, N. Manikandan, M. Paulraj, Vikram Jayaram, S. Asokan - National Symposium on Instrumentation 2005 held at Cochin University of Science and Technology, Cochin 682 022 India during 30th November - 2nd December, 2005
2. Structural and Optical Studies on RF Plasma Polymerized Frufrual Thin films: ***S Saravanan***, M R Anantharaman, S Venkatachalam, D K Avasthi - 18th Annual symposium on Metallurgical and Material Research held at Indian Institute of Science, Bangalore during January 12-13, 2005
3. Photoluminescence Studies on RF Plasma Polymerized Thin Films: ***S Saravanan***, C Joseph Mathai, M R Anantharaman, S Venkatachalam, D K Avasthi, F Singh - 6th International Conference on Conjugated Polymers and Biosystems held at Jawaharlal Nehru Centre for Advanced Scientific Research & Indian Institute of Science, Bangalore during January 4-8, 2005
4. Effect of Swift Heavy Ions on the Structural and Optical Properties of RF Plasma Polymerized Aniline Thin Films: ***S Saravanan***, C Joseph Mathai, D K Avasthi, S Venkatachalam, M R Anantharaman AVS 50th International Symposium held at Baltimore, MD, USA during Nov. 2 - 7, 2003.
5. Low dielectric constant materials based on plasma polymerised aniline thin films: ***S Saravanan***, C Joseph Mathai, M R Anantharaman, S Venkatachalam, P V Prabhakaran - Proceedings of the 45th DAE Solid State Physics Symposium, Vol. 45 (2002) 261-262
6. Conductivity Studies on Oligomeric Cobalt Phthalocyanine: ***S Saravanan***, C Joseph Mathai, M R Anantharaman, S Venkatachalam, P V Prabhakaran - Proceedings of the International Seminar on: Advances in Polymer Technology, (2002) 211-215
7. Structural and Dielectric Properties of Polyaniline Doped with Camphor Sulphonic Acid: ***S Saravanan***, C Joseph Mathai, M R Anantharaman, S Venkatachalam, P V Prabhakaran - Proceedings of the Seventh International Symposium on Advances in Electrochemical Science and Technology, Vol. I (2002) D21 – D24

8. The Optical and Electrical Properties of Polyaniline Thin Films Deposited under rf and ac Plasma Polymerization: U S Sajeev, C Joseph Mathai, ***S Saravanan***, S Venkatachalam, M R Anantharaman - Proceedings of the Symposium on Power Beams and Materials Processing, (2002) 696-700
9. Plasma assisted deposition technique for synthesis of low dielectric constant polyanisidine thin films: C Joseph Mathai, ***S Saravanan***, M R Anantharaman, S Venkatachalam, S Jayalekshmi - 29th IEEE International Conference on Plasma Science held at Banff, Alberta, Canada, during May 26-30, 2002.
10. On the Optical Bandgap of in situ Doped Plasma Polymerised Anisidine Thin Films: C Joseph Mathai, ***S Saravanan***, S Jayalekshmi, M R Anantharaman, S Venkatachalam, P V Prabhakaran - APS DPP held at USA Oct - Nov 2001.
11. Plasma Assisted Deposition Technique for Synthesis of low Dielectric Constant Polyaniline Thin Films: C Joseph Mathai, ***S Saravanan***, S Jayalekshmi, M R Anantharaman, S Venkatachalam, P V Prabhakaran - APS DPP held at USA Oct - Nov, 2001.
12. On the optical bandgap of in situ doped plasma polymerised aniline thin films: C Joseph Mathai, ***S Saravanan***, S Jayalekshmi, M R Anantharaman, S Venkatachalam, P V Prabhakaran, IVS held at Indian Institute of Science, Bangalore during 5 - 7 September 2001.
13. Evaluation of Schottky Device Parameters for Doped Polyaniline: C Joseph Mathai, ***S Saravanan***, S Venkatachalam, S Jayalakshmi, M R Anantharaman National Seminar on current trends in materials science held at Mahatma Gandhi University, Kottayam, India during 23 - 24 March 2001.
14. Mössbauer Studies on heat-treated Ferromanganese Nodules from Central Indian Ocean: ***S Saravanan*** One day State Level Post Graduate Students Technical Seminar in Physical Sciences held at Pachiyappa's College Chennai India on 13 March 1999.

MISCELLANEOUS TALKS

- Plasma Polymerisation - A Novel Technique: TMS Club Lecture Series, Department of Metallurgy, Indian Institute of Science, Bangalore - 560 012 India
- Conducting Polymers and Ceramic Films - Synthesis and Characterization: School of Physical, Environmental and Mathematical Sciences, University of New South Wales @ the Australian Defence Force Academy Canberra, ACT 2600, Australia

OVERSEAS LAB EXPERIENCES (SHORT TIME)

- Advanced Materials Group, School of Physical, Environmental and Mathematical Sciences, University of New South Wales @ the Australian Defence Force Academy Canberra, ACT 2600, Australia
- Department of Physics, Macqurie University, Sydney NSW 2109, Australia
- Secondary Ion Mass Spectrometer Lab, Australian Nuclear Science, Technology Organization, Sydney, NSW 2234, Australia

CONFERENCES / ORIENTATION COURSE ATTENDED

1. 6th Orientation Course for Post Graduate Students at Inter University Consortium For DAE Facilities ***[IUC DAEF]*** Calcutta Centre Calcutta India

2. One day State Level Post Graduate Students Technical Seminar in Physical Sciences held at Pachiyappa's College Chennai India
3. Seminar on Measurements techniques for thin film characterization held at Coimbatore Institute of Technology Coimbatore India
4. National Conference on Recent Advances in Materials Science ***[NCMS-2000]*** held at Nehru Memorial College Tiruchirapalli India
5. National Seminar on Current Trends in Materials Science ***[CTIMS-2001]*** held at School of Pure and Applied Physics Mahathma Gandhi University Kottayam India
6. National Symposium on Vacuum Science & Technology ***[IVSNS – 2001]*** held at Indian Institute of Science [IISc] Bangalore India
7. Seventh International Symposium on Advances in Electrochemical Science and Technology ***[ISAEST - VII]*** held at Chennai India
8. Workshop on "Polymers in Information & Communication Technology" and International Seminar on "Advances in Polymer Technology" ***[APT '02]*** held at Polymer Science and Rubber Technology Cochin University of Science and Technology Cochin India
9. 45th DAE Solid State Physics Symposium ***[DAE SSPS 2002]*** held at Department of Physics Panjab University Chandigarh India
10. 6th International Conference on Conjugated Polymers and Biosystems ***[OP 2005]*** held at Jawaharlal Nehru Centre for Advanced Scientific Research and Indian Institute of Science, Bangalore India
11. 18th Annual symposium on Metallurgical and Material Research held at Indian Institute of Science, Bangalore India

MISCELLANEOUS PURSUITS

- Co Guided M.Sc and M.Phil Students for their Projects [2000-2003]
- General Secretary, Cochin University Research Scholars Association, Cochin University [2002]
- Hostel Secretary, Men's Hostel, Bharathidasan University [1998]

PERSONAL INFORMATION

Gender : Male,

Marital Status : Single,

Date of Birth : 21.05.1977

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Gandhi Road, Vijayapuram, Thiruvarur - 610 001 India
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