

## Dr. S. Paulraj

Project Scientist - II  
Centre for Automotive Energy Materials (CAEM)  
International Advanced Research Centre for Powder Metallurgy & New  
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### EDUCATION

Degree/Class	Branch	Institution	Year
Ph. D	Physics	Periyar University, Salem. TN, India	2012
M. Phil	Physics	Periyar University, Salem. TN, India	2007
M.Sc	Physics	Ayya Nadar Janaki Ammal College, Sivakasi, TN, India	2005
B.Sc	Physics	Ayya Nadar Janaki Ammal College, Sivakasi, TN, India	2003
HSC	Maths, Biology	A.V. Hr. Sec. School, Sattur, TN, India	2000
SSLC		A.V. Hr. Sec. School, Sattur, TN, India	1998

### WORK EXPERIENCE

Position	Institution	Duration
Project Scientist II	Centre for Automotive Energy Materials (CAEM), International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI), Chennai, TN, India	26 September to till date
Associate Professor	Department of Physics, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, Chennai, TN, India	22 April 2021 - 21 September 2022
Assistant Professor & Head	Department of Physics, School of Basic Sciences, Vels Institute Science Technology and Advanced Studies, Chennai, TN, India	01 July 2016 – 10 April 2021
Post-Doctoral Fellow (UGC – Dr. D. S. Kothari PDF Scheme)	Centre for Nanoscience and Technology, Anna University, Chennai, TN, India	10 August 2012 – 09 August 2015
Assistant Professor	Department of Physics and Nanotechnology, SRM Institute of Science and Technology, Chennai, TN, India	6 January 2012 – 08 August 2012

Lecturer	Department of Physics, Muthaymmal College of Arts & Science, Rasipuram, Namakkal (DT), TN, India	13 June 2005 – 31 October 2006
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RESEARCH INTEREST / SKILLS	
Research Interest	<ul style="list-style-type: none"> <li>• Permanent magnetic materials</li> <li>• Superconducting materials</li> <li>• Magnetocaloric materials</li> <li>• Thermoelectric materials</li> </ul>
Technical Skills	<ul style="list-style-type: none"> <li>• Four probe resistivity</li> <li>• <i>ac</i> susceptibility</li> <li>• Vibrating Sample Magnetometer (VSM)</li> <li>• Thermopower measurement</li> <li>• X-ray Diffractometer</li> <li>• UV-Vis spectrophotometer</li> <li>• Handling of cryogenics liquid nitrogen and liquid helium</li> <li>• Materials synthesis: solid state reaction, arc melting method, hydrothermal, microwave irradiation etc.</li> </ul>
Computer Skills	C, C++, Origin 9.1, PowderX, X'pert Highscore Plus, Windows 10

AWARDS / FELLOWSHIP / RECOGNITION	
1	UGC – Dr. D. S. Kothari Post-Doctoral Fellow (August 2012 - August 2015)
2	Senior Research Fellow (SRF), CSIR Govt. India (April 2010 - December 2011)
3	Project Fellow of UGC-DAE CSR (November 2006 - March 2010)
4	Received Poster Award in the 53 <sup>rd</sup> DAE Solid State Physics Symposium-2008 for the poster on “Magnetic behavior in superconducting Ba <sub>1-x</sub> K <sub>x</sub> Fe <sub>2</sub> As <sub>2</sub> ”
5	Selected as one of the participants to attend “Summer School in Physics” conducted by Indian Institute of Astro Physics, Kodaikanal from 07 June to 03 July, 2004.

PUBLICATIONS ( <i>In peer reviewed journals</i> )	
1	An Outlook into the Magnetic and Magnetocaloric Properties of Cr <sub>1.3</sub> Fe <sub>0.7</sub> O <sub>3</sub> , Kowsalya Murugan, Prakash Govindaraj, Sakunthala Ayyasamy, <b>Paulraj Selvaraj</b> , and Kathirvel Venugopal, Physica Status Solidi B 2023, 2200595
2	Microwave-assisted synthesis of cobalt doped WO <sub>3</sub> nanostructure as an electrode material for supercapacitor, Dharmalingam Nagaraj, S. Rajagopal, Dayana Lonappan, Pandiyarasan Veluswamy, <b>S. Paulraj</b> , and Kathirvel Venugopal, Journal of Materials Science: Materials in Electronics (2023) 34: 846
3	Investigating the Magnetocaloric Properties of Magnetically Frustrated Delafossite: AgCrO <sub>2</sub> Kowsalya Murugan, A. T. Sathyanarayana, Prakash Govindaraj, <b>S. Paulraj</b> , Awadhesh Mani, Kathirvel Venugopal, Journal of Electronic Materials, 52 (2023) 1652
4	Ultra-high thermopower of 3D network architectures of ZnO nanosheet and porous ZnO nanosheet coated carbon fabric for wearable multi-applications, Jyothis George, Aiswarya M, Mythri V. K, Suhasini Sathiyamoorthy, <b>S. Paulraj</b> , V. Kathirvel, Malik Maaza, Abhijit Majumdar, Pandiyarasan Veluswamy, Ceramic International 48 (2022) 28874

5	Enhanced UV-Irradiated Photocatalytic Degradation of Malachite Green by Porous WO <sub>3</sub> Decorated on 2D Graphene Sheet, Nagaraju Perumal, <b>Paulraj Selvaraj</b> , Hariharan Venkatesan, Allen Moses Samuel Elizabeth, Raghu Yuvaraj, Rajeswari Yogamalar Navaneetha Pandian and Jayavel Ramasamy, Applied Biochemistry and Biotechnology 195 (2023) 3966
6	Facile microwave synthesis of Sn-doped WO <sub>3</sub> for pseudocapacitor applications Dharma Lingam, Vetrivendan, Pandiyarasan V, Rajagopal S, <b>Paulraj S</b> and Kathirvel V, Journal of Materials Science: Materials in Electronics 33 (2022) 9246
7	Effect of surfactant on the electrochemical performance of tungsten oxide as supercapacitor electrode, Kowsalya M; <b>Paulraj S</b> ; Rajagopal S; Premchandran V; Pandiyarasan Veluswamy; Kathirvel Venugopal, Journal of Materials Science: Materials in Electronics 33 (2022) 8833
8	Incorporation of polyaniline on graphene-related materials for wearable thermoelectric applications, Anshu Psnbude, Suhasini Sathiyamoorthy, Kumar R, Shankar H, <b>Paulraj S</b> , Kathirvel V, A. M. Adam, E. M. M. Ibrahim, Pandiyarasan Veluswamy, Materials Letters 304 (2021) 130576
9	Thermoelectric properties of Lenate: A first principal study, Prakash G, <b>Paulraj S</b> , A. M. Adam, E. M. M. Ibrahim, Pandiyarasan Veluswamy, Kathirvel V, Materials Letters 300 (2021) 130146
10	Microwave-assisted synthesis of Ru and Ce doped tungsten oxide for supercapacitor Electrode <b>S. Paulraj</b> , and R. Jayavel, Journal of Materials Science: Materials in Electronics 29 (2018) 13794
11	Synthesis, structure and magnetic properties of spin ladder compound Ca <sub>1-x</sub> Co <sub>x</sub> Cu <sub>2</sub> O <sub>3</sub> , C. Sekar, <b>S. Paulraj</b> , G. Krabbes, M. Kanagaraj, S. Arumugam and Ravhi S. Kumar, Journal of Magnetism and Magnetic Materials 323 (2011) 3033
12	Effect of rotation of feed and seed rods on the quality of Na <sub>0.75</sub> CoO <sub>2</sub> single crystal grown by traveling solvent floating zone method, C. Sekar, <b>S. Paulraj</b> , P. Kanchana, B. Schüpp-Niewa, R. Klingeler, G. Krabbes and B. Büchner, Materials Research Bulletin 46 (2011) 675
13	Critical properties of superconducting Ba <sub>1-x</sub> K <sub>x</sub> Fe <sub>2</sub> As <sub>2</sub> , A. Bharathi, Shilpam Sharma, <b>S. Paulraj</b> , A.T. Satya, Y. Hariharan and C. S. Sundar, Physica C: Superconductivity and its applications 470 (2010) 8
14	Superconductivity in Ru substituted polycrystalline Ba <sub>1-x</sub> K <sub>x</sub> Fe <sub>2</sub> As <sub>2</sub> , Shilpam Sharma, A. Bharathi, Sharat Chandra, Raghavendra Reddy, <b>S. Paulraj</b> , A. T. Satya, V. S. Sastry, Ajay Gupta and C. S. Sundar, Physical Review B 81 (2010) 174512
15	Pressure-induced superconductivity in BaFe <sub>2</sub> As <sub>2</sub> single crystal Awadhesh Mani, Nilotpal Ghosh, <b>S. Paulraj</b> , A. Bharathi and C. S. Sundar, Europhysics Letters 87 (2009) 17004

#### **PUBLICATION (In Conference Proceedings)**

1	Simultaneous structural and optical control of tungsten oxide (WO <sub>3</sub> ) nanoparticles through cobalt doping for L-dopa biosensing applications, V. Hariharan, S. Radhakrishnan, M. Parthibavarman, <b>S. Paulraj</b> and C. Sekar, National Conference on Nanoscience and Nanotechnology (NCNN-2011), University of Madras, Chennai.
2	Synthesis and characterization of two- leg spin ladder compound Ca <sub>1-x</sub> Co <sub>x</sub> Cu <sub>2</sub> O <sub>3</sub> , <b>S. Paulraj</b> , C. Sekar, G. Krabbes, B. Büchner and S. Arumugam, DAE Solid State Physics Symposium 55, 2010 at Manipal University, Manipal. AIP Conf. Proc. 1349 (2011) 1125-1126.
3	Growth of phase pure Na <sub>0.75</sub> CoO <sub>2</sub> single crystals by traveling solvent floating zone (TSFZ) method, C. Sekar, P. Kanchana, <b>S. Paulraj</b> , G. Krabbes, B. Büchner, DAE Solid State Physics Symposium 55, 2010 at Manipal University, Manipal. AIP Conf. Proc. 1349 (2011) 1207-1208.

4	Synthesis and characterization of $M_{1-x}K_xFe_2As_2$ (M = Ba, Sr, Eu, Yb), <b>S. Paulraj</b> , A. Bharathi, Y. Hariharan and C. S. Sundar, DAE Solid State Physics Symposium 53, 2008 at BARC & TIFR Mumbai, Mumbai
5	Magnetic behavior in superconducting $Ba_{1-x}K_xFe_2As_2$ , A. Bharathi, A. T. Satya, <b>S. Paulraj</b> , Y. Hariharan and C. S. Sundar, DAE Solid State Physics Symposium 53, 2008 at BARC & TIFR Mumbai, Mumbai
6	Synthesis and study of the new iron chalcogenide superconducting systems $FeSe_{1-\delta}$ and $FeSe_{1-x}Te_x$ , J. Janaki, T. Geetha Kumary, Awadhesh Mani, S. Kalavathi, <b>S. Paulraj</b> and A. Bharathi, DAE Solid State Physics Symposium 53, 2008 at BARC & TIFR Mumbai, Mumbai
7	The effect of Ca doping on structural, magnetic and electrical properties of $Gd_{1-x}Ca_xCo_2O_{5.5\pm\delta}$ , S. Sen, <b>S. Paulraj</b> , J. Janaki, A. Bharathi, Y. Hariharan and C. S. Sundar, International Conference on Magnetic Materials, 2007

#### LIST OF CONFERENCES / WORKSHOPS / SEMINARS / FDP ATTENDED

1. Participated in the 5 Day online FDP on "Inculcating Universal Human Values in Technical Education" organized by AICTE from 31<sup>st</sup> January to 4<sup>th</sup> April 2022
2. Participated in the SSE Expert talk on "Functional Materials for Electronics and Clean Energy Device Applications" organized by the Department of Micro and Nanoelectronics, Saveetha School of Engineering, Chennai on 28<sup>th</sup> October 2021.
3. Participated in the National Webinar on "Prospective of Thermoelectric Materials" organized by the Department of Physics, C. Kandaswami Naidu College for Men, Chennai on 11<sup>th</sup> October 2021
4. Participated in the DST Sponsored Two Days Virtual Workshop on Scanning Electron Microscope conducted by Sethu Institute of Technology, 5-6 October 2021
5. Participated in the International Webinar on Materials Science (IWOMS 2021) organized by the Research Centre of Physics, Fatima College, Madurai on 1<sup>st</sup> October 2021
6. Participated in the SSE Expert Talk on "Sustainable Carbon-based Electrodes for Energy Storage" organized by the Department of Applied Chemistry, Saveetha School of Engineering, Chennai on 17<sup>th</sup> September 2021
7. Participated in the International Webinar series on Indian Nuclear Power Programme organized by the Department of Physics, Karunya Institutes of Technology and Sciences, Coimbatore on 22<sup>nd</sup> June 2021
8. Participated in the International Webinar series on Indian Nuclear Power Programme organized by the Department of Physics, Karunya Institutes of Technology and Sciences, Coimbatore on 8<sup>th</sup> June 2021
9. Participated in the Webinar on "Innovative Technologies in Crystal Growth" organized by Department of Physics, Arasu Engineering College, Kumbakonam, Tamilnadu on 29<sup>th</sup> April 2021.
10. Participated in the virtual international conference on "Futuristic Research in Nanotechnology" organized by Faculty of Allied Health Sciences, Chettinad Academy of Research and Education, Kelambakkam, Tamilnadu on 25<sup>th</sup> March 2021
11. Participated in the RUSA sponsored online workshop on "Online Assessment Tools: A Step forward" organized by Mehr Chand Mahajan DAV College for Women on 22<sup>nd</sup> March 2021
12. Participated in Virtual FDP on "Creating Online Courses through Open Educational Resources" organized by Navjivan Centre for Development on 11<sup>th</sup> February 2021.

13. Participated in the “Innovations and Applications of Chemical Sciences in Challenging COVID-19 pandemic (IAS 2021)” organized by Department of Chemistry, Vels Institute of Science Technology and Advanced Studies, Pallavaram, Chennai on 29<sup>th</sup> January 2021
14. Participated in the RUSA sponsored Online Workshop cum Awareness Program on “Open Educational Resources” organized by Mehr Chand Mahajan DAV College for Women on 22<sup>nd</sup> January 2021.
15. Participated in National Workshop on “Outcome based Education” organized by Department of Mathematics, Vels Institute of Science Technology and Advanced Studies, Pallavaram, Chennai on 21<sup>st</sup> January 2021.
16. Participated in the Faculty Development Program on "3D PRINTING & DESIGN" sponsored by ATAL and organized by Indian Institute of Information Technology Design and Manufacturing (IIITDM) Kancheepuram, Tamilnadu from 4<sup>th</sup>~8<sup>th</sup> January 2021.
17. Participated in International Webinar on “Polymer Electrolyte Membrane Fuel Cells (PEMFCs)” organized by Vinayaga Mission’s Kirupananda Variyar Engineering College, Salem on 21<sup>st</sup> December 2020.
18. Participated in the one-week FDP on “Soft Skills: Mentoring Skill and Emotional Intelligence in Education” organized by Department of Science and Humanities, Bharat Institute of Engineering and Technology in collaboration with Centre for Research and Education in Social Integration and Human Resource & Telangana State Council for Higher Education from 5<sup>th</sup> ~ 10<sup>th</sup> October 2020.
19. Participated in international webinar on “How to get research grants for UGC, AICTE” organized by MBITS & SMBS on June 9, 2020.
20. Participated in Webinar on “Graphene based Nanocomposites for Energy Storage” organized by Department of Physics, V.O. Chidambaram College, Tuticorin, Tamilnadu, India on June 1, 2020.
21. Attended the Faculty Development Programme on “Advanced Materials Research”, organized by Department of Science and Humanities, Bharat Institute of Engineering and Technology and Indian Ceramic Society from 15-19 June 2020.
22. Attended webinar on “International level COVID 19 pandemic webinar on Functional Novel Materials for Electrochemical Sensors and Energy Storage Devices”, 15<sup>th</sup> May- 2020, Jointly organized by Thiagarajar College, Madurai and Ming Chi University of Technology, Taiwan.
23. Chief Guest of “Vaels RBGS Scientia 2019” in Vaels Ravindra Bharathi Global School, Keelkattalai, Chennai on 31<sup>st</sup> August 2019.
24. Participated in the National Symposium on Emerging Areas of Research in Science, Engineering and Management organized by Vels Institute of Science Technology and Advanced Studies, Pallavaram, Chennai from 15 – 16 October 2018.
25. Participated in the 2-day Faculty Development Program on “Creative Pedagogy” organized by Vels Institute of Science Technology and Advanced Studies, Pallavaram, Chennai – 600 117 on 29~30 June 2018.
26. Participated in the Two Week ISTE STTP program on “Electric Power System” offered by IIT Kharagpur and conducted by Vels University, Pallavaram, Chennai – 600 117 on 10~15 July 2017.
27. Participated in the 3-day Faculty Development Program on “Pedagogy & Research Methodology” organized by Vels University, Pallavaram, Chennai – 600 117 on 30<sup>th</sup> June & 1 July 2017.

28. Participated in the 3-day Faculty Development Program on "Student Centric Pedagogy" organized by Vels University, Pallavaram, Chennai – 600 117 on 2, 4 & 5 July 2016.
29. National Conference on Nanotechnology and Biosensors (NCNB-2011), March 3-4, 2011, Department of Bioelectronics and Biosensors, Alagappa University, Karaikudi.
30. 55<sup>th</sup> DAE Solid State Physics Symposium, December 26-30, 2010 at Manipal University, Manipal.
31. The awareness workshop on "The Facilities of UGC-DAE CSR", September 16-17, 2009, Centre for High Pressure Scientific Research, School of Physics, Bharathidasan University, Trichy.
32. 53<sup>rd</sup> DAE Solid State Physics Symposium, December 16-20, 2008, Bhabha Atomic research Centre, Mumbai.
33. The awareness workshop on "Low temperature and High Magnetic Field Facilities at CSR Indore", December 10-12, 2007, UGC-DAE CSR, Indore.
34. National Conference on recent Advances in Vibrational Spectroscopy (NCVS 2007), January 29-30, 2007, Department of Physics, Periyar University, Salem.
35. 11<sup>th</sup> National Seminar on Crystal Growth, December 7-9, 2006, SSN College of Engineering, Chennai.
36. IUAC Acquaintance program on "Accelerator Based Research", December 1, 2006, Kongunada Arts and Science College, Coimbatore.
37. State level seminar on "Einstein the Genius of Geniuses", December 26-27, 2005, Srmad Andavan Arts and Science College, Trichy.
38. Summer School in Physics, Indian Institute of Astro Physics, Kodaikanal during June 07- July 03, 2004.
39. One day Inter-Collegiate Seminar on Solid State Physics, October 19, 2002, Devanga Arts College, Aruppukottai.