Dr. (Mrs). S. RAJASHABALA

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https://www.scopus.com/authid/detail.uri?authorId=13409237200



1. Personal Details

Date of Birth & Age : 30.01.1973 & 49 Gender & Marital Status : Female & Married

Nationality : Indian

2. Educational Qualifications: M. SC, M. PHIL, PHD, PDF (USA) (*SLET)

2.1. Academic

S. No	Degree	Year	Subject/Title of the Project	University/ Institution	% of marks
1.	B.Sc.	1993	Physics	Government Arts College, Karur-639005, Tamilnadu	First (67%)
2.	M.Sc.	1995	Physics	Alagappa University, Karaikudi, Tamilnadu	First (67%)
3.	M.Phil.	1996	Studies of Dipolar Interactions in Acetonitrile and Excess Dipole moments in Diphenylamine Complexes with Alcohols	Alagappa University, Karaikudi, Tamilnadu	First (74%)
4.	Tamilnadu State Level Eligibility Test (*SLET)	1998	Physics	Conducted by Bharathidasan University, Tiruchirappalli, Tamilnadu	Qualified
5.	Ph.D.	2010	Physics-Theoretical Investigations on Impurity States in Semiconductor Quantum Well Systems	Madurai Kamaraj University, Madurai, Tamilnadu	Awarded
6.	INDO-USA Raman Post-Doc. Fellow	2013- 2014	Dissociation of III and V hydrides for on-board hydrogen storage using BN-nanotubes as catalyst – A DFT study	Utah State University, Logan, USA	Completed

7.	INSA Visiting Scientist	2017- 2018	Exploration of N doped 2D Carbon Allotrope as a Biosensor – A DFT Study	SRM University, Chennai, Tamilnadu	Completed
8.	JNCASR Visiting Fellowship Programme (Postponed)	2020	Grand Canonical Monte Carlo Simulation for Adsorption and Sequestrations of Hazardous Gases Towards Environmental Remediation	Jawaharlal Nehru Centre for Advanced and Scientific Research (JNCASR), Bangalore	Selected

2.2. Research

Degree	Name of the	Title of the Thesis	Date of	Date of
	University		Submission	Award
PhD	Madurai Kamaraj University, Madurai, Tamilnadu	Physics-Theoretical Investigations on Impurity States in Semiconductor Quantum Well Systems	May 2008	04 th January 2010
MPhil	Alagappa University, Karaikudi, Tamilnadu	Studies of Dipolar Interactions in Acetonitrile and Excess Dipole moments in Diphenylamine Complexes with Alcohols	31 st July 1996	18 th March 1997

3. Post-Doctoral/ Research Associate / Industrial Experience

Name of the University / Institute / Industry	Period of Work	Nature of Work
Utah State University, Logan, USA	2013-2014	INDO-USA Raman Post-Doc. Fellow
SRM University, Chennai, Tamilnadu	23/10/2017 - 22/01/2018	INSA Visiting Scientist

4. Professional Experience

S. No	Institution	Position	From (date)	To (date)	Duration
1.	SRM University, Chennai, Tamilnadu	INSA Visiting Scientist	23/10/2017	22/01/2018	3 Months
2.	Department of Chemistry and Biochemistry, Utah State University, Logan, Utah 84322-0300, USA	Visiting Post- Doctoral Fellow	29/10/2013	28/10/2014	1 Yr

3.	School of Physics Madurai Kamaraj University Madurai,Tamilnadu	Associate Professor & (Head - 18/12/2014) (Stage IV) AGP of 9000	10/02/2012	Till date	10 Yrs 9 months
4.	School of Physics Madurai Kamaraj University Madurai,Tamilnadu	Assistant Professor (Stage III) AGP of 8000	10/02/2009	09/02/2012	3 Yrs
5.	School of Physics Madurai Kamaraj University Madurai,Tamilnadu	Senior Lecturer/Assistant Professor (Stage II) AGP of 7000	10/02/2004	09/02/2009	5 Yrs
6.	School of Physics Madurai Kamaraj University Madurai,Tamilnadu	Lecturer (Stage I) AGP of 6000	10/02/1999	09/02/2004	5 Yrs

5. Teaching

S. No	Year	Course Title	Core/Elective/ Course Work	Hours Per week
		M.Sc. (Physics)		
1.	1999-	Practical Lab-1	Core Subject	
2.	2023	Practical Lab-II	Core Subject	
3.	(M.Sc,	Solid State Physics (I &II)	Core Subject	
4.	M.Phil,	Mathematical Physics	Core Subject	
5.	Ph.D)	Quantum Mechanics (I &II)	Core Subject	
6.		Molecular Physics	Core Subject	
7.		Laser Physics	Core Subject	
8.		Statistical Mechanics	Core Subject	
		M.Phil. (Physics)		
9.		Essentials of Solid State Theory	Elective Subject	
10.		Eigen Physics	Core Subject	
11.		Nanophysics	Elective Subject	
		Ph.D. (Physics)		
12.		Research Methodology	Core Subject	
13.		Nanotechnology	Core Subject	
14.		Nanomaterials and Characterization Techniques	Course Work	
15.		Introduction to Fuel cells and Hydrogen	Course Work	

	Storage	
16.	Fabrication, Characterization and Applications of Nanostructured Thin Film	Course Work
17.	Nanomaterials for Gas Sensor Applications	Course Work
18.	Band Theory of Solids	Course Work
19.	Introduction to Dye Sensitized Solar Cells	Course Work
20.	Introduction to Supercapattery	Course Work

6. Design/Development of New Curricula and Courses

Description	Organization for which it was Developed	Level (UG/PG)	Dated
University Nominee	Arul Anandar College(Autonomous) Karumathur	Board of studies in Physics (UG & PG)	10.01.2023
University Nominee	Arul Anandar College(Autonomous) Karumathur	Board of studies in Physics (UG & PG)	09.01.2023 - 08.01.2026
University Nominee	Hajee Karutha Rowther Howdia College (Autonomous) Uthamapalayam	Board of studies in M.Sc.,Physics	08.11.2022
University Nominee	V.V. Vanniaperumal College for Women, Virudhunagar	Board of studies in Costume Design and Fashion (UG)	21.10.2021 - 20.10.2024
University Nominee	E.M Gopalakrishna Kone Yadava Women's College (Autonomous), Madurai	Board of studies in Physics (PG)	17.08.2022
University Nominee	Sri Meenakshi Government Arts College for Women(Autonomous), Madurai	Board of studies in Physics (PG & UG)	29.07.2022
External Practical Examiner	Devanga Arts College, Arupukottai	Major Practical Examination of M.Sc., Physics	8 th & 9 th June, 2022
University Nominee	Mannar Thirumalai Naicker College (Autonomous), Madurai	Board of studies in M.Sc. Physics	01.04.2022
University Nominee	Lady Doak College, Madurai	Board of studies in Physics	17.02.2022
University Nominee	V.V. Vanniaperumal College for Women, Virudhunagar	B.Sc. Costume Design and Fashion	10.01.2022
University Nominee	Sri S. Ramasamy Naidu Memorial College (Autonomous), Sattur	Planning and Evaluation Committee	12.07.2021 - 11.07.2023
University Nominee	Hajee Karutha Rowther Howdia College (Autonomous) Uthamapalayam	Academic Council Member	08.04.2021

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I Individuality Name in a	Sri Meenakshi Government Arts College	Board of studies in	17.03.2021
University Nominee	for Women(Autonomous), Madurai	Physics (PG & UG)	16.03.2023
University Nominee	Mannar Thirumalai Naicker College (Autonomous), Madurai	Board of studies in Physics	17.03.2021
University nominee	V.V. Vanniaperumal College for Women, Madurai	Board of Studies in Costume and Fashion design	19.02.2021
University nominee	V.V. Vanniaperumal College for Women, Virudhunagar	Board of Studies in approve the Syllabus	17.02.2021
University Nominee	Hajee Karutha Rowther Howdia College	Academic Council	11.02.2021
,	(Autonomous) Uthamapalayam	Member	10.01.2023
University Nominee	The Mannar Thirumalai Naicker College	Board of Studies in Physics (PG)	29.01.2021
	(Autonomous), Madurai	Thysics (TO)	28.01.2023
University Nominee	VVV college for Women (Autonomous), Virudhunagar	Board of studies in Physics (PG)	19.01.2021 - 18.01.2023
University nominee	Lady Doak College, Madurai	Board of Studies in Fashion Designing	17.11.2020
University Nominee	SFR College, Sivakasi	Board of studies in Physics	24.04.2020
University Nominee	Fathima College, Madurai	Board of studies in Physics	07.03.2020
University Nominee	Lady Doak College, Madurai	Board of studies in Physics	31.10.2019
University Nominee	V.V.Vanniaperumal College	Board of studies in Physics	25.10.2019
University Nominee	American College, Madurai	Academic Council Member	24.10.2019
University Nominee	American College, Madurai	Academic Council Member	31.05.2019
University Nominee	GTN College	Board of Studies in Physics	22.05.2019
University Nominee	Nagarathinam Angalammal Arts & Science College	Costume Design and Fashion	24.04.2019
University Nominee	Thiagarajar College, Madurai	Board of Studies in Department of Physics	23.04.2019
University Nominee	The Standard Fireworks Rajaratnam College for Women, Sivakasi	Board of Studies in Physics (UG)	11.04.2019
External Practical Examiner	Theni Arts and Science College, Veerapandi	Major Practical Examination of M.Sc.,	09.04.2019

		Physics	
University Nominee	Nazia College of Arts and Science	B.Sc (Physics) course affiliation	04.09.2018
University Nominee	Arts and Science College	Inspection Committee Eexperts for Fresh affiliation	27.08.2018
University Nominee	Vivekananda College (Autonomous), Madurai	Board of studies in Physics (PG)	05.07.2018 - 04.07.2020
Chairman	All Affiliated colleges under MKU	UG – PG Semester Exam Valuation	01.12.2016
Member	Alagappa University,	DDE Board of Studies	from
	Karaikudi	Member in Physics	01.09.2015
Subject Expert And Yadava Women's University Nominee College, Madurai		Board of studies (PG)	21.09.2012
member	Madurai Kamaraj University	Board of Practical Examinations in M. Sc Physics	2010

7. Creation of ICT Mediated Teaching-Learning Pedagogy

8. Research Specialization:

- Hydrogen Storage Materials
- ➤ Gas Sensors and Biosensors
- ➤ Photocatalytic Dye degradation
- > Toxic Heavy Metal Ion Detection
- > Supercapattery
- > Low Dimensional Quantum well Systems and
- ➤ Modelling of Nanomaterials

Field of Specialization:

- ➤ Low Dimensional Quantum well Systems
- Computational Modelling
- > Green Energy Harvesting and Storage
- > Energy and Environmental Remediation Applications

9. Research Publications

Papers Published in UGC-CARE Listed Journals – International/National (61)

1. M. Saraswathi, **S.Rajashabala*** and Tapas Kar, A Comparison Study on the Sensing Ability of C₂₀/ B₁₂N₁₂ Nanocage Towards Beryllium Hydride Cluster and Beryllium Hydride Molecules Using Density Functional Theory (DFT), J. Comp.Mat. Sci (3.7), (2023), **Under Review**

- 2. M.P.Jeya, **S.Rajashabala*** and R. Kannan, Novel Ternary Fluorescent Probe for the Effective Detection/Adsorption of Toxic Heavy Metal Ions and Water, ournal of Photochemistry and Photobiology A: Chemistry, (2022), **Under Review**
- 3. M. Kaaviah, R. Kannan and **S.Rajashabala***, Preparation and Characterization of Hydrogen Storage Medium (IMO/TPAC) and Asymmetric Supercapacitor (IMO/TPAC) using Imogolite (IMO) and Biomass Derived Activated Carbon from Tangerine Peel (TPAC) for Renewable Energy Storage Applications, Int. J. Hyd. Energy (7.1), 2022, **Under Review**
- 4. M. Kaaviah, R. Kannan and **S.Rajashabala***, Expeditious Re-Hydrogenation Kinetics of Magnesium Hydride (MgH₂) Decorated Acid Treated Halloysite Nanotube (A-HNT)/Polyaniline (PANI) Nanocomposite (MgH₂/A HNT/PANI) For Fuel Cell Applications J. Mat. Sci (4.6), 2022, **Under Review**
- M. Saraswathi, S.Rajashabala*, Ajit K.Roy, Tapas Kar, N/O→B dative bonds supplemented by N–HN/HC hydrogen bonds make BN-cages an attractive candidate for DNA-nucleobase adsorption – an MP2 prediction, 24, 16862, Phys. Chem. Chem. Phys., 2022,

Impact Factor: 3.676 Citation: 1 https://doi.org/10.1039/D2CP01355J

6. M. Kaaviah, R. Kannan and **S.Rajashabala***, Enhanced Hydrogen Storage and Superior Capacitive Performances of Ball Milled PMMA/h-BN Core Shell Nanocomposite, 28(20071), Ionics, 2021,

Impact Factor: 2.817 Citation: 1

http://dx.doi.org/10.1007/s11581-022-04531-5

- 7. P. Vasantha Kumar, R. Bhuvaneshwari, M. Kaaviah, R. Kannan and S.Rajashabala*, Enhanced Photocatalytic Degradation of Tetracycline Antibiotic using m-BiVO₄ Photocatalyst under Visible Light Irradiation, 771, 13853, Chemical Physics Letters, 2021, Impact Factor: 2.328 Citation: 14 https://doi.org/10.1016/j.cplett.2021.138531
- 8. M. Kaaviah, P. Vasantha Kumar, R. Kannan and **S.Rajashabala***, Investigation of Solid State Hydrogen Storage performances of Novel NaBH₄/Ah-BN Nanocomposite as Hydrogen Storage Medium for Fuel cell Applications, 860, 158444, J. Alloys and Compounds, 2020,

Impact Factor: 6.371 Citation: 16

https://doi.org/10.1016/j.jallcom.2020.158444

9. P. Vasantha Kumar, M. Kaaviah, R. Kannan and **S.Rajashabala***, Efficient Sunlight Driven Photocatalytic Behavior of Zinc Sulfide Nanorods Towards Rose Bengal Degradation, 31, 14795-14809, J. Mater. Sci.: Mater. Electron (2020)

Impact Factor: 2.478 Citation: 22

https://doi.org/10.1007/s10854-020-04043-w

10. R.Naresh Muthu, **S.Rajashabala***, R.Kannan, Synthesis and characterization of micro-porous hybrid nanocomposite membrane as potential hydrogen storage medium towards fuel cell applications, 25, 8, 3561–3575, Ionics, 2018,

Impact Factor: 2.354 Citation: 5

https://link.springer.com/article/10.1007/s11581-019-02957-y

11. AJ. Nagajothi, R Kannan, **S.Rajashabala***, Preparation and Characterization of PEO-based composite gel-polymer electrolytes complexed with lithium trifluoro methane sulfonate, 36(2), 185-192, Mater.Sci-poland, 2018,

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https://doi.org/10.1515/msp-2018-0025

12. M.Saraswathi, **S.Rajashabala***, Tapas Kar, Aluminium doping makes Boron Nitride Nanotubes(BNNTs) an attractive adsorbent of Hydrazine (N₂H₄), DOI.10.1007/s 11224-017-1034-8, Struct. Chem, 2018,

Impact Factor: 1.582 Citation: 17

https://link.springer.com/article/10.1007/s11224-017-1034-8

13. S.Porchelvi, R. Kannan, P. Bahavan Palani, K.Sainul Abidin, **S.Rajashabala***, High conductive proton exchange membrane (SPEEK/MMT) and its characterization, 1-6, Mater. Research Innov, 2017,

Impact Factor: 0.37 Citation: 9

https://doi.org/10.1080/14328917.2017.1361667

14. AJ. Nagajothi, R.Kannan, **S.Rajashabala***, Lithium ion conduction in plasticizer based composite gel polymer electrolytes with the addition of SiO₂, 1-5, Mater. Research Innov, 2017,

Impact Factor: 0.37 Citation: 7

 $\underline{https://doi.org/10.1080/14328917.2017.1300725}$

15. A Kavitha, R Kannan, **S.Rajashabala***, Effect of target power on the physical properties of Ti thin films prepared by DC magnetron sputtering with supported discharge,173-180 Mater. Sci-Poland, 2017,

Impact Factor: 0.610 Citation: 9 https://doi.org/10.1515/msp-2017-0022

16. A.Kavitha, R Kannan, KR Gunasekhar, **S.Rajashabala***, Effect of Nitrogen Content on Physical and Chemical Properties of TiN Thin Films Prepared by DC Magnetron Sputtering with Supported Discharge, 1-8, Jrnl .Elec. Mater, 2017,

Impact Factor: 1.579 Citation: 7

http://dx.doi.org/10.1007/s11664-017-5608-4

17. AJ Nagajothi, R Kannan, **S.Rajashabala***, Electrochemical performance of plasticized PEO-LiTf complex-based composite gel polymer electrolytes with the addition of barium titanate, 1-8, Ionics, 2017,

Impact Factor: 2.062 Citation: 15

https://link.springer.com/article/10.1007/s11581-017-2307-3

18. Porchelvi, S, Kannan, **S.Rajashabala***, **S**, Bahavan palani, P& Sainul Abidin, K, Dielectric Dispersion and Relaxation Behaviour Of Synthesized Polymer Electrolyte Membrane For Electrochemical Applications, ISSN: 2395-0056, vol. 04, Special Issue: 09, International Research Journal of Engineering and Technology (IRJET) (6.171), 2017,

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https://www.irjet.net/archives/V4/i9/Special_Issue/IRJET-ISMST14.pdf

19. K.SainulAbidin ,P. R.Kannan, Bahavan Palani, **S.Rajashabala***, Role of structural modifications of montmorillonite, electrical properties effect, physical behavior of nanocomposite proton conducting membranes for direct methanol fuel cell applications, 35(4), 707-716, Mater. Sci-Poland, 2017,

Impact Factor: Citation: 5

http://dx.doi.org/10.1515/msp-2017-0112

20. A.J.Nagajothi, R.Kannan, and **S.Rajashabala***, Studies on electrical properties of poly (ethylene oxide)-based gel polymer electrolytes with the effect of chitosan for lithium-sulfur batteries, DOI 10.1007/s00289-017-1993-3, Polym. Bull, 2017,

Impact Factor: Citation: 20

https://link.springer.com/article/10.1007/s00289-017-1993-3

21. R. Naresh Muthu, **S.Rajashabala*** and R. Kannan, Hydrogen storage performance of lithium borohydride decorated activated hexagonal boron nitride nanocomposite for fuel cell applications, 1-11, Int. J. Hydrogen Energy, 2017,

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22. P. Bahavan Palani, K.SainulAbidin, R.Kannan, and **S.Rajashabala***, Effect of modified nanoclay composite on blended PVDF/PEG electrolyte membranes for fuel cell applications, 16,4,1760042, Int. J. Nanosci., 2017

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https://doi.org/10.1142/S0219581X17600420

23. R. Naresh Muthu, **S.Rajashabala*** and R. Kannan, Facile Synthesis and Characterization of Reduced Graphene Oxide / Halloysite Nanotubes / Hexagonal Boron Nitride(RGO/HNT/h-BN) Hybrid Nanocomposite and its Potential Application as Hydrogen Storage, **6**, (79072-79084), RSC Advances, 2016,

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24. R. Naresh Muthu, **S.Rajashabala*** and R.Kannan, Synthesis, Characterization of Hexagonal Boron Nitride Nanoparticles Decorated Halloysite Nanoclay Composite and Its Application as Hydrogen Storage Medium, 90, (554–564), Renew. Energy, 2016,

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25. R. Naresh Muthu, **S.Rajashabala*** and R.Kannan, Hexagonal Boron Nitride (h-BN) decorated Multiwalled Carbon Nanotubes (MWCNT) for Hydrogen storage, 85,(387 – 394), Renew. Energy, 2016,

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https://doi.org/10.1016/j.renene.2015.06.056

26. A.Kavitha, R.Kannan, P.Sreedhara Reddy & **S.Rajashabala***, The effect of annealing on the structural, optical and electrical properties of titanium nitride (TiN) thin films prepared by DC magnetron sputtering with supported discharge, J Mater Sci: Mater Electron, 27:10427, 2016,

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https://link.springer.com/article/10.1007/s10854-016-5130-0

27. S.Visalakshi, R.Kannan, S.Valanarasu, **S.Rajashabala***, Effect of adsorption time on structural, optical and electronic properties of SILAR deposited CuO thin films, J Mater Sci: Mat. Electronics, 2016,

Impact Factor: 2.478 Citation:

https://link.springer.com/article/10.1007/s10854-016-4954-y

28. S.Visalakshi, R.Kannan, S.Valanarasu, **S.Rajashabala***, Studies on optical and electrical properties of SILAR- deposited CuO thin films, JMat.sci: Res. Innovations, 2016.

Impact Factor: 2.12 Citation: 12

http://dx.doi.org/10.1080/ 14328917.2016.1194586

29. R. Naresh Muthu, **S.Rajashabala*** and R.Kannan, Synthesis and Characterization of Polymer (Sulfonated poly-ether-ether-ketone) based Nanocomposite (h-Boron Nitride) Membrane for Hydrogen Storage, 40, 1836-1845, Int.J. Hydrogen Energy, 2015,

Impact Factor: 3.313 Citation: 45

https://doi.org/10.1016/j.ijhydene.2014.11.136

30. N. Rajamanickamn, **S.Rajashabala** and K. Ramachandran, Synthesis, Structural and optical properties of Perovskite type CH₃NH₃PbI₃ nanorods, 1665, 080034, AIP Conf Proc, 2015,

Impact Factor: 0.402 Citation: 2

https://doi.org/10.1063/1.4917938

31. N. Rajamanickamn, **S.Rajashabala** and K. Ramachandran, Room Temperature Ferromagnetism and structural properties of Nano BaTiO₃, 1665, 130002, AIP Conf Proc, 2015,

Impact Factor: 0.402 Citation: 3

http://dx.doi.org/10.1063/1.4918150

32. N. Rajamanickamn, S.S. Kanmani, **S.Rajashabala** and K. Ramachandran, Influence of Sr doping on structural, optical and magnetic properties of TiO₂ nanoparticles, 161, 520 – 522, Mater. Lett., 2015,

Impact Factor: 2.489 Citation: 20

https://doi.org/10.1016/j.matlet.2015.09.023

33. **Rajashabala Sundaram,** Steve Scheiner, Ajit K. Roy, Tapas Kar, Site and chirality selective chemical modifications of boron nitride nanotubes (BNNTs) via Lewis acid–base interactions, 17, (3850-3866), Phys. Chem. Chem. Phys., 2015,

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https://doi.org/10.1039/C4CP04790G

34. **Rajashabala Sundaram**, Steve Scheiner, Ajit K. Roy and Tapas Kar, B=N Bond Cleavage and BN Ring Expansion at the Surface of Boron Nitride Nanotubes by Iminoborane, 119,(3253 –3259), J. Phys. Chem. C, 2015,

Impact Factor: 4.772 Citation: 18

https://doi.org/10.1021/jp512753n

35. P.Bahavan Palani, K. Sainul Abidin, R. Kannan, **S. Rajashabala**, M. Sivakumar, Enhanced Proton Conductivity by the Influence of Modified Montmorillonite on Poly (Vinyl alcohol) Based Blend Composite Membranes, 1731, 110028, AIP Conf Proc, 2015, Impact Factor: 0.402 Citation: - https://doi.org/10.1063/1.4948049

36. P. Bahavan Palani, R. Kannan, **S. Rajashabala**, S. Rajendran and G. Velraj, Effect of nano-composite on polyvinyl alcohol-based proton conducting membrane for direct methanol fuel cell applications, Ionics (1.754), 2015,

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37. R. Naresh Muthu, **S. Rajashabala**, and R. Kannan, Experimental Investigation on Hydrogen Storage in Polymer Based Nanocomposite, 1665, 050092, AIP Conf Proc, 2015, Impact Factor: 1.49 Citation: 1

https://doi.org/10.1063/1.4917733

38. R. Naresh Muthu, **S. Rajashabala**, and R. Kannan, Hydrogen Adsorption Properties of Multiwalled carbon nanotubes – Hexagonal Boron Nitride Nanocomposite, 7, 1172-1177, Int.J.ChemTech Res, 2014 – 2015

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39. R. Naresh Muthu, **S. Rajashabala**, and R. Kannan, Hexagonal Boron Nitride Nanoparticles Decorated Halloysite Clay Nanotubes as a Potential Hydrogen Storage Medium, AIP Conf Proc, 2015,

Impact Factor: 0.402 Citation: https://doi.org/10.1063/1.4947707

40. P. Bahavan Palani, R.Kannan, **S. Rajashabala** and G. Velraj, Studies on PVA based nanocomposite Proton Exchange membrane for direct methanol fuel cell (DMFC) Applications, 73, 012128, IOP Conf. Ser.:Mater.Sci. Eng, 2015,

Impact Factor: 0.48 Citation: 10

http://dx.doi.org/10.1088/1757-899X/73/1/012128

41. N. Rajamanickam, R.N. Mariammal, **S. Rajashabala** and K. Ramachandran, Effect of (Li, Mn) co-doping on structural, optical and magnetic properties of chunk-shaped nano ZnO, 614,151–164, J. Alloy. Compd. (2.999), 2014,

Impact Factor: 2.999 Citation: 43

https://doi.org/10.1016/j.jallcom.2014.06.081

42. N. Rajamanickam, **S. Rajashabala** and K. Ramachandran, Theoretical and experimental investigation on enhanced thermal behavior in chunk shaped nano ZnO, 112, 142 – 150, Mol. Phys. (1.720), 2014,

Impact Factor: 1.720 Citation: 5

http://dx.doi.org/10.1080/00268976.2013.805265

43. N. Rajamanickam, **S. Rajashabala**, R. Ramesh Babu, Nandakishor Messhram and K. Ramachandran, Electrical studies on Perovskite BaSnO₃ Nanostructures, 1591, 251-253, AIP Conf. Proc, 2014,

Impact Factor: 0.402 Citation: 1

https://doi.org/10.1063/1.4872562

44. N. Rajamanickam, P.Ganesan, **S. Rajashabala** and K. Ramachandran, Structural and Optical properties of α- MnO₂ Nanowires and β- MnO₂ Nanorods, 1591, 267-269, AIP Conf. Proc, 2014,

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https://doi.org/10.1063/1.4872568

45. P. Bahavan Palani, K.SainulAbidin, R.Kannan, M.Sivakumar, Fu-Ming Wang, S. Rajashabala and G. Velraj, Improvement of proton conductivity nanocomposite polyvinyl alcohol (PVA)/Chitosan (CS) blend membranes, 4, 61781-61789, RSC Adv., 2014,

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https://doi.org/10.1039/C4RA10788H

46. N. Rajamanickam, **S. Rajashabala** and K. Ramachandran, On the Structural and Optical Properties of nano ZnO and its morphologies, 146, 226–233, J. Lumin (2.719), 2014,

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https://doi.org/10.1016/j.jlumin.2013.09.074

47. N. Rajamanickam, **S. Rajashabala** and K. Ramachandran, Effect of Mn-doping on the structural, morphological and optical properties of ZnO nanorods, 65, 240-247, Superlattices Microstruct., 2014,

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Title of the Book	Chapter contributed with page Nos.	Name of the Publisher	International / National	ISBN/ ISSN
Applications of Nanomaterials Electronics and Environment Energy	Role of Mn doping on the Structural, Morphological and Optical Properties of ZnO Nanorods pp. 89 – 94 (2012)	Bloomsbury Publishing India Pvt. Ltd.	National	9789382 563358

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- 75. P. Bahavan Palani, R. Kannan and **S. Rajashabala**, Structural properties of polystyrene based electrolytes for DMFC, Two Days State level seminar on Recent developments and applications on Nano systems (RDANS), March 10-11, 2011, School of Physics, M.K.University, Madurai
- 76. S. Nithya, R. Kannan and **S. Rajashabala** Effect of layered silicates on pvdf/pva based polymer electrolytes for methanol fuel cell applications, National Seminar on Recent Trends in Nanomaterials, School of Chemistry, M.K.University, Madurai, March 4-5,2011,
- 77. **S. Rajashabala** and R. Kannan, Simultaneous effects of hydrostatic pressure and geometry on metal-insulator transition in a GaAs cubical quantum dot, International Symposium on Semiconductor Materials and Devices (ISSMD 2011) M.S. University at Vadodara, during 28-30, Jan.2011 J. Nano- Electron. Phys.3, 1042(2011)
- 78. **S. Rajashabala** and R. Kannan, Theoretical investigations on the effect of geometry in a GaAs cubical quantum dot, International Conference and Workshop on New Materials and Devices for Photovoltaic Applications (ICWNMDP-2011) (February 10-12, 2011)", Department of Material, Science, M.K.University
- 79. R. Kannan and **S. Rajashabala**, Effect of geometry on metal-insulator transition in a cubical quantum dot, 55th DAE-Solid State Physics Symposium at Manipal university, Manipal, Dec.26–30, 2010 AIP Conf. Proc. Vol.1349, pp. 829-830 (July 2011)

- 80. P. Bahavan Palani, R. Kannan and **S. Rajashabala**, PVA/MMT/Modified MMT polymer Electrolyte Membrane for Direct Methanol Fuel Cell (DMFC) Applications, National conference on Advanced Functional Materials and applications (NCAFMA-2011), Department of Chemistry and Central for Nanotechnology, Kalasalingam University, 16-17 Dec, 2011
- 81. R. Kannan and **S. Rajashabala**, Acid clay polymer nanocomposite membranes for fuel cell Applications, National conference on Recent trends in green Synthesis (RTGS-2011) Department of industrial Chemistry, School of Chemistry, Alagappa university, Karaikudi, 5-6 Aug, 2011
- 82. **S.Rajashabala**, participated in the Advanced Materials, Processing and Devices (AMPD-2010) by School of Chemistry, Department of Material Science at School of Chemistry, Department of Materials Science, Madurai Kamaraj University, Madurai, 15th 16th Feb, 2010
- 83. R. Kannan and **S. Rajashabala**, Eriminkalathirikku Thevaipatum Patalam (Membrane) Thayarikkum Murai, Tamilaga Ariviyal Paravai Onpatham Karutharangam, Alagappa university, Karaikudi, ISBN 93-80043-33-3, Sep. 11-13, 2009
- 84. **S. Rajashabala** and K. Navaneetha Krishnan, Spin- orbit interactions and diamagnetic susceptibility of donors in low-dimensional quantum well systems, International conference on Magnetic Materials (ICMM 2007), Saha Institute of Nuclear Physics, Kolkata
- 85. **S. Rajashabala**, K. Navaneetha Krishnan*, Metal Insulator Transition Through Exciton Mechanism in Quantum Well Systems, 52nd DAE Solid State Physics Symposium organized by DAE, Mysore, Dec.27-31, 2007

10. Citation Metrics

S. No	Details	Web of Science	Scopus	Google scholar	Research Gate
1.	Publications (number as appeared)	41	55	55	55
2.	Citations (Overall)	573	733	748	706
3.	Citations (excluding review/ overview papers)	573	733	748	706
4.	h – index	16	18	17	17
5.	i-10 index	-	-	25	-

11. Details of Patents

12. Research Guidance/Supervision

Degree / Programme	Completed	Submitted	Ongoing
PhD (Full-time)	02	01	04 +1 (Registration
			under process)
PhD (Part-time)	-	-	-
MPhil Research Project (Full-time)	18	01	-
MPhil Research Project (Part-time)	-	-	-
MSc Projects/Dissertation	58	-	04
MSc Internships/Summer or Winter Projects	-	-	-

13. Funded Research Projects

13.1. Ongoing

S. No	Title	Role	Grant Period	Cost	Funding Agency
1.	Copper Vanadate Metal Oxide Based Absorber Layer for Eco Friendly and Efficient Solar cell	Mentor	2018-2023	13,49,855/- (2018-2021)	DST- INSPIRE
2.	Development of Novel Florescent Detector for the Effective Identification of Toxic Heavy Metal Ions	Project			MKU-RUSA
3.	Earth-abundant, non- toxic and sulphur-free metal oxide thin film solid solar cell fabrication using facile techniques	Project Coordinator	2021-2023	87,04,000/-	PHASE II

13.2 Completed

S. No	Title	Role	Grant Period	Cost	Funding Agency
1.	Preparation and Characterization of Hydrogen Storage Materials for Fuel cell Applications	Principal Investigator	2012-2015	11,97,600/-	UGC-MRP
2.	Synthesis and Characterization of Energy Harvesting Materials for Hydrogen Storage	Principal Investigator	2017-2021	34,87,000/-	DST-SERB

14. Reviewer in Journals

- ❖ International Journal of Hydrogen Energy Elsevier Publication IF 5.816
- ❖ Arabian Journal of Chemistry Elsevier Publication IF 5.165
- ❖ Journal of Cleaner Production Elsevier Publication IF 9.297
- ❖ Journal of Industrial and Engineering Chemistry Elsevier Publication IF 6.064

15. Research Collaborations

S. No	Name of the Collaborator	Institute	Collaboration Details	Collaboration Output (Papers/Patents/ Research /Online)
1.	Dr. Tapas Kar (Adjunct Professor)	Department of Chemistry and Biochemistry, Utah State University, Logan, Utah, USA	International	Research papers
2.	Prof. Steve Scheiner	Department of Chemistry and Biochemistry, Utah State University, Logan, Utah, USA	International	Research papers
3.	Dr. Kannan Raman (Professor)	Department of Physics, University college of Engineering, Anna University, Dindigul	National	Research papers
4.	Dr. M. Sivakumar (Associate Professor) Department of Physics, Alagappa University, Karaikudi		National	Research papers
5.	Prof. G. Velraj	Department of Physics, Alagappa university, Karaikudi	National	Research papers
6.	Dr. A. Manuel Stephen (Principal Scientist)	CSIR-Central Electrochemical Research Institute (CSIR-CECRI), Karaikudi	International	Research Papers

16. Countries Visited

17. Honours / Awards / Recognitions

Name of the Honours / Awards /	Awarding Agency	International / National
Recognition		/ State / Institute Level
Principal Investigator - DST-SERB	DST, India	National
Project (2022 – 2025)		
Project Coordinator - RUSA Phase II	RUSA, MKU	National
Research Project (2021 – 2023)		
JNCASR Visiting Fellowship	Jawaharlal Nehru	National
Programme	Centre for	
	Advanced	
	Scientific Research	
	(JNCASR)	
INDO-USA collaborated Raman	UGC, New Delhi	National
Fellowship		
Mentor - DST-INSPIRE Project	DST, India	National
(2018 - 2023)		
Principal Investigator - DST-SERB	DST, India	National
Project (2017 – 2021)		
Principal Investigator - UGC-MRP	UGC, India	National
(2012 - 2015)		

18. Conferences / Seminars / Workshops Organized (05)

Level	Conference Title	Date(s)	Place	Role Played	Funding
National	National Symposium on Functional Nanomaterials – (NSFM-2019)	4 th - 5 th Jan, 2019	DRS Hall, School of Physics, Madurai Kamaraj University, Madurai	Convenor	School of Physics and In association with IISER, Trivandrum
International	International conference on Advanced Functional Materials for Energy, Environment and Biomedical Applications (AFMEEB-2017)	11 th - 12 th Dec, 2017	Preview Theatre, Madurai Kamaraj University, Madurai	Convenor	UGC-DSA: SOP, DST- PURSE, TTS-SBS, MKU
State	One day Workshop on Teaching and Research Methodologies in Physics (TRMP-	25 th Oct, 2016	Madurai Kamaraj University, School of Physics,	Coordinator	Curriculum Development Cell (CDU), MKU

	2016)		Madurai		
State	Recent Developments and Applications on Nano-Systems (RDANS – 2011)	10 th – 11 th Mar, 2011	School of Physics, Madurai Kamaraj University, Madurai	Coordinator	UGC-DRS Phase III Programme
State	Recent Trends in Condensed Matter Physics	15 th - 16 th Feb, 2010	School of Physics, Madurai Kamaraj University, Madurai		UGC-DRS Phase III Programme

19. Invited Lectures (10)

S. No	Title	Name of the Program	Place	Date
1.	Hydrogen Storage Materials for Fuel Cell Applications	Refresher Course on Recent Trends	School of Physics, Madurai	14 th Feb,
2.	Exploration of Non carbon Nanomaterials Towards Gas sensor applications	in Physics for Energy and Environment (RTPEE-2020)	Kamaraj University, Madurai	2020
3.	Exploration of Non carbon Nanomaterials Towards Gas sensor applications	Workshop on Computational Physics	Ayya Nadar Janaki Ammal College, Sivakasi	23 rd Jan, 2020
4.	Research Opportunities in Physics	16 th Inter collegiate meet Phyonics - 2018	Sermathai Vasan College for women, Department of Physics Madurai-12	16 th Aug, 2018
5.	Introduction to Quantum Theory and its Applications	Seven – day FDTP Programme	Department of Physics, Anna University, University College of Engineering, Dindigul	20 th - 26 th June, 2018
6.	Exploration of Boron Nitride Nanotubes Towards Hydrogen Storage	Refresher Course	Mother Terasa Women's University, Department of Physics, Kodaikanal	25 th Nov, 2016

7.	New insights into the Chemistry of Boron Nitride Nanotubes	Refresher Course	Madurai Kamaraj University, School of Chemistry	22 nd Nov, 2016
8.	Preparation and Characterization of Hydrogen Storage Materials for Fuel cell Applications	Refresher Course	Madurai Kamaraj University, School of Chemistry	16 th Nov, 2016
9.	Delivered a Talk on "Nanomaterials for Hydrogen Storage Applications"	School Seminar	Madurai Kamaraj University, School of Physics	04 th Dec, 2012
10.	Delivered a Course Introduction on Refresher Course in English, Life Sciences and Physics"	Refresher Course	Madurai Kamaraj University, School of Biological Science	16 th Nov, 2012

20. Professional Development Programs / Faculty Development Programs Organized

S. No	Name of the Refresher course	Funding agency	Place	Duration
1.	Recent Advances in the Physics of Materials (RAPM-2022)- Co-ordinator	UGC-HRDC Academic Staff College	School of Physics, Madurai Kamaraj University, Madurai	07 th Oct, 2022 - 20 th Oct, 2022
2.	Recent Advances in Physics (RAP - 2020) Co-ordinator	UGC-HRDC Academic Staff College	School of Physics, Madurai Kamaraj University, Madurai	09 th - 22 nd Dec, 2020
3.	Emerging Areas of Condensed Matter Physics (EACMP - 2018) Deputy-Coordinator	UGC-HRDC Academic Staff College	School of Physics, Madurai Kamaraj University, Madurai	16 th Nov, 2018 - 06 th Dec, 2018
4.	Current Trends in Physics (CTP-2015) Co-ordinator	UGC-HRDC Academic Staff College	School of Physics, Madurai Kamaraj University, Madurai	03 rd - 23 rd Feb, 2015
5.	Recent Trends in Condensed Matter Physics (RTCMP - 2012) Co-ordinator	UGC-HRDC Academic staff college	School of Physics, Madurai Kamaraj University, Madurai Nov	16 th Nov, 2012 - 06 th Dec, 2012

21. Professional Development Programs / Faculty Development Programs Attended

S. No	Course attended	From	To	University	Subject
1.	Orientation Course	29.05.2017	11.06.2017	Global Initiative for Academic Networks (GIAN), Department of Materials Science, Madurai Kamaraj University, Madurai.	Physics
2.	Refresher Course	10.11.2010	30.11.2010	Academic Staff College, Madurai Kamaraj University Madurai – 625 021.	Physics
3.	Refresher Course	03.11.2009	23.11.2009	Academic Staff College, Madurai Kamaraj University Madurai – 625 021	Physics
4.	Orientation Course	23.01.2002	19.02.2002	Academic Staff College, Madurai Kamaraj University Madurai – 625 021	Physics
5.	Refresher Course	01.02.2000	21.02.2000	Academic Staff College, Madurai Kamaraj University Madurai – 625 021	Physics

22. Administrative Experiences

Role Played	Responsibilities	Period (Month & Year)	
		(Month & Tear)	
Chairperson (i/c) -School of Physics	Administration of Constituent Departments	2019-2021	
School Coordinator	Preparation of reports and documents towards NAAC	2021	
Academic council	Madurai Kamaraj University	13.03.2018	
Member Syndicate	Highest decision making for the development of MKU	15.10.2017 -13.03.2018	
Chairman	UG /PG central valuation	1.12.2016	
Coordinator (i/c)-UGC DSA	UGC DSA Programme	1.11.2016	
Member- Curriculum Development Cell	Curriculum Development	19.09.2016	
Head, Department of Theoretical Physics	Administration of Department activities	18.12.2014	

23. Membership in Academic Bodies

- ❖ IQAC Member MKU
- ❖ Internal Complaint Committee Member (ICC) MKU
- ❖ Board of Studies committee member MKU

- ❖ Building Committee Member MKU
- ❖ Pensioner's Health Committee Member MKU
- ❖ Appointment Committee including the affairs of Establishment − MKU
- Course Advisor, School of Physics MKU
- ❖ Chemical Purchase Committee member, School of Physics MKU
- ❖ Admission (M.Sc., & M.Phil.,) Committee Member MKU
- ❖ School Council Member SOP, MKU
- ❖ Doctoral Committee Member (Anna University, Bharathidasan University, Vel Tech University)
- Purchase Committee Member to Purchased SAXS related attachments and software worth about € 30,500.00 under PURSE – SOP, MKU
- External expert member (University of Hyderabad, Thiagarajar College of Engineering)
- ❖ Basic Scientific Research (BSR) Fellowship (i/c) SOP, MKU

24. Membership in Recognised Professional Bodies

25. Languages Known

Languages	Read	Write	Speak
Tamil	Yes	Yes	Yes
English	Yes	Yes	Yes

26. Competence in Computer Applications

27. Involvement in Extension Activities other than Academic Works

- ❖ Delivered Chief Guest Address for PHYSAAC-22 (Intercollegiate Competitions) in PG & Research Department of Physics at Arul Anandar College (Autonomous) on 08.04.2022
- ❖ Delivered Chief Guest Address for the Workshop on Computational Physics (Exploration of Non carbon Nanomaterials Towards Gas sensor applications) at Ayya Nadar Janaki Ammal College, Sivakasi on 23rd Jan 2020.
- Delivered Chief Guest Address for the Research Opportunities in Physics (16th Inter collegiate meet Phyonics -2018) at Sermathai Vasan College for women, Department of Physics Madurai-12 on 16th Aug, 2018

28.	Any	Other	Relevant	Information
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