

**Dr.S.Rajesh- Professor and Head, Department of  
Applied Physics**



Name: Dr.S.RAJESH

Designation: PROFESSOR AND HEAD

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Area of Specialization: Thin films, solar cells, Nanomaterials and Robotics

Professional Experience: 20 years

<b>S. No</b>	<b>Position held</b>	<b>Name of the Institute</b>	<b>From</b>	<b>To</b>
1	Lecturer	Karunya University	2002	2004
2	Senior Lecturer	Karunya University	2004	2006
3	Assistant Professor	Karunya University	2006	2008

4	Associate Professor	Karunya University	2008	2011
5	Professor	Karunya University	2011	2014
6	Professor & Head	Karunya University	Sep-2014	2016
7	Professor & Head	Karunya University	2016	Till Date

*Academic Qualification (List from highest to lowest degree)*

	<b>Degree</b>	<b>Year</b>	<b>Subject</b>	<b>University/institution</b>	<b>% of Marks</b>
1	B.Sc.,	1993	Physics	Bharathiar University	73
2	M.Sc.,	1995	Physics	Bharathiar University	67
3	M.Phil	1998	Physics	Bharathiar University	First Class
4	Ph.D	2002	Physics	Bharathiar University	First Class

*Projects Guided*

S.No	Ph.D ThesisTitle	Candidate name	Year of Award
1	Realization of wide spectrum absorption with curtailed recombination in organic (znpc) donor by ultrathin inorganic acceptors through quantum cascade structures	R.rathes kannan	2020
2	Investigations of nanostructured thin film metal oxides prepared by pulsed laser deposition for the mosfet application	Cyril robinson	2018
3	Fabrication of organic and inorganic nanostructures for biomedical applications	A.jegan	2017
4	Preparation and characterization of snse and inse thin films and study of phase change mechanism due to annealing	Maria sahayaraj	2017
5	Preparation of cuinse <sub>2</sub> and cuingase <sub>2</sub> thin films through multilayer approach for effective utilization of solar spectrum	Mohan	2017
6	Realization of quantum confinement effect on thermally evaporated pbte nanocrystals embedded in amorphous inse thin film matrix	P.manonmani parvathi	2015
7	Investigation of quantum confinement effect in pbse/znse multiple quantum well structures prepared by thermal evaporation technique	V.arivazhagan	2015
8	Surface modification of mwcnt with oxides of tin, indium and vanadium for gas sensing applications	J.suryakanth	2014
9	Studies on the properties of transition metal doped nanostruced tin oxide based dilute magnetic	V.vadivel	2014

	semiconductors		
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*Details of the Publications*

S.No	Authors	Title	Name of Journal	Impact Factor	Volume	Page
1	V. ShobinVijay RojinVarghese A.Sakunthala* S.Rajesh* B.Vidhya	Highly crystalline V <sub>2</sub> O <sub>5</sub> and V <sub>6</sub> O <sub>13</sub> thin films by PLD and a study on morphology transition of V <sub>2</sub> O <sub>5</sub> by post annealing	Vacuum Letters	3.6	110097	MAY 2021
2	Manjula R. Shenoy, SakunthalaAyyasamy*, Vidhya Bhojan, Rajesh Swaminathan, Nandhakumar Raju, P. Senthil Kumar, M. Sasikumar, Govindan Kadarkarai, Saravanakumar Tamilarasan, Selvaraju Thangavelu, Suryakanth J, M. V. Reddy	Visible light sensitive hexagonal boron nitride (hBN) decorated Fe <sub>2</sub> O <sub>3</sub> photocatalyst for the degradation of methylene blue	Journal of Materials Science: Materials in Electronics	2.6.	4766-4783	Feb 2021
3	S Nelson, P.I. , Mohan, A. , Kannan, R.R. , Vidhya, B. , Rajesh	<a href="#">Realization of C-60 whiskers incorporated chalcopyrite CuIn<sub>x</sub>Ga<sub>1-x</sub>Se<sub>2</sub> in Cu<sub>2</sub>Se/C-60/In<sub>3</sub>Se<sub>2</sub>/C-60/Ga<sub>2</sub>Se<sub>3</sub> multilayer structures</a>	Materials letters	2.8	128692	Jan 2021
4	RojinVarghese V ShobinVijay S.Rajesha A.Sakunthala* P. SenthilKumar Raman Sankar	Thin film LiV <sub>3</sub> O <sub>8</sub> nanorod formation through Pulsed Laser Deposition and the effect of heat treatment	Vacuum	3.62	109722	DEC 2020
5	John Chelliah, C.R.A., Swaminathan, R.	Improved optical absorption, enhanced morphological and electrochemical properties of pulsed laser deposited binary zinc and vanadium oxide thin	Journal of Materials Science: Materials in Electronics,	2.61	7348–7358	May 2020

		films				
6	D Godfrey, D Nirmal, L Arivazhagan, R Rathes Kannan, P Issac Nelson, <b>S Rajesh</b> , B Vidhya, N Mohankumar	<a href="#">A novel ZnPc nanorod derived piezoelectric nanogenerator for energy harvesting</a>	Physica E: Low-dimensional Systems and Nanostructures	3.176	118	113931
7	V Balasubramani, J Chandrasekaran, R Marnadu, P Vivek, S Maruthamuthu, <b>S Rajesh</b>	<a href="#">Impact of Annealing Temperature on Spin Coated V<sub>2</sub>O<sub>5</sub> Thin Films as Interfacial Layer in Cu/V<sub>2</sub>O<sub>5</sub>/n-Si Structured Schottky Barrier Diodes</a>	Journal of Inorganic and Organometallic Polymers and Materials	1.637	29	1533-1547
8	P Mary Rajaita, K Shamsa, I Sheebha, B Vidhya, V Maheskumar, <b>S Rajesh</b>	<a href="#">Influence of the Positioning of the Incorporated Carbon Nanostructures on the Morphology and Photocatalytic Activity of Microwave Synthesized ZnO Nanorods</a>	Journal of nanoscience and nanotechnology	0.49	19	5303-5309
9	R. Rathes Kannan, P. Issac Nelson, <b>S. Rajesh</b> , T. Ponmudi Selvan, A. Mohan, B. Vidhya, D. Nirma, L. Arivazhagan	Curtailed recombination and fast carrier transport in ZnPc/GaAs/ZnPc stacked hybrid structure.	Journal of Optical Materials	2.687	85	287-29
10	Trijo Tharayil, Lazarus Godson Asirvatham, <b>S Rajesh</b> , Somchai Wongwises	<a href="#">Thermal Management of Electronic Devices Using Combined Effects of Nanoparticle Coating and Graphene–Water Nanofluid in a Miniature Loop Heat Pipe</a>	IEEE Transactions On Components, Packaging and Manufacturing Technology	2.3	8	1241-1253
11	Shesstarwell Kharbani and <b>S. Rajesh</b>	Performance and Conductivity of Flexible CNT Field Effect Transistors	J. Nanoelectron. Optoelectron		13	440-44
12	P. Prajoon, M. Anuja Menokey, J. Charles Pravin, J. Ajayan, <b>S. Rajesh</b> , D. Nirmal	<a href="#">Investigation of efficiency enhancement in InGaN MQW LED with compositionally step graded GaN/InAlN/GaN multi-layer barrier</a>	Superlattices and Microstructures	2.123	116	71-78
13	Arkilang Challam, Cyril Robinson Azariah John Chelliah, D. Nirmal, and	Design and Fabrication of GaAs Based MOSFET by Physical Vapor Deposition	Materials Focus	-	7	1-6

	<b>Rajesh Swaminathan</b>	Method				
14	CRAJ Chelliah, <b>S.Rajesh</b>	<a href="#">Pulsed laser deposited hexagonal wurzite ZnO thin-film nanostructures/nanotextures for nanophotonics applications*</a>	Journal of Nanophotonics, 2018	-	12	1-10
15	R. Rathes Kannan, A. Mohan, P. Issac Nelson, V. Arivazhagan, B. Vidhya, <b>S. Rajesh</b>	Effect of strain in PbSe/ZnPc stacked layers prepared by thermal evaporation method	Journal of Materials Science: Materials in Electronics	2.324	29	7041-7047
16	P. Issac Nelson, R. Rathes Kannan, A. Mohan, <b>S.Rajesh</b> , B. Vidhya	Impact of sequential annealing on the characteristics of thermally evaporated semiconductor Cu <sub>2</sub> Se/ZnSe/Cu <sub>2</sub> Se sandwich structure	Journal of Materials Science: Materials in Electronics	2.324	29	7393-7401
17	C. A. R. Maria Sahayaraj, A. Mohan, R. Rathes Kannan, <b>S. Rajesh</b>	Investigation on Structural, Optical and Morphological Properties of the SnSe Films with Function of Annealing Temperatures	Journal of Computational and Theoretical Nanoscience	-	24	5603-5607
18	A Mohan, <b>S Rajesh</b>	Temperature induced CuInSe <sub>2</sub> nanocrystal formation in the Cu <sub>2</sub> Se-In <sub>3</sub> Se <sub>2</sub> multilayer thin films	Superlattices and Microstructures	2.123	104	186-200
19	CARM Sahayaraj, A Mohan, K Rathesh, <b>S Rajesh</b>	Structural, optical and electrical properties in indium selenide thin films prepared under nitrogen atmosphere	Materials Today Communications	0.718	12	29-33
20	MM Parvathi, V Arivazhagan, A Mohan, <b>S Rajesh</b>	Crystallization of amorphous InSe matrix in PbTe–InSe multilayer nanocomposite structure	Journal of Materials Science: Materials in Electronics,	2.019		1-7
21	Vaiyapuri Subbarayan Periasamy, <b>Swaminathan Rajesh</b> , Mushawah Abdullah Almushawah, Ali A, Alshatwi, Jegan Athinarayanan	Synthesis of Polyphenon-60 Functionalized Bimetallic 4 Ag–Pt Nanostructures that Inhibit Proliferation of SiHa 5 Cells	Journal of Cluster Science	1.471	16	1142-4
22	<b>S. Rajesh</b> E. Peter Francis	Preparation of Surface Modified Multi-Walled	Journal of Advanced	0.36	11 (2)	130-133

	Mathew, V. Persis Preethi	Carbon Nanotubes Based Thin-Film Gas Sensor	Microscopy Research			
23	A Mohan, <b>S Rajesh</b> , M Gopalakrishnan	Preparation of multiband structure with Cu <sub>2</sub> Se/Ga <sub>3</sub> Se <sub>2</sub> /In <sub>3</sub> Se <sub>2</sub> thin films by thermal evaporation technique for maximal solar spectrum utilization	Superlattices and Microstructures	2.123	98	46-53
24	A Mohan, <b>S Rajesh</b> , G Sriresh	CuInSe <sub>2</sub> formation through Cu <sub>2</sub> Se–In <sub>3</sub> Se <sub>2</sub> multilayer structures prepared by thermal evaporation technique	Superlattices and Microstructures	2.123	93	261-26
25	M. Balaji, J. Chandrasekaran, M. Raja, <b>S. Rajesh</b>	Structural, optical and electrical properties of Ru doped MoO <sub>3</sub> thin films and its P–N diode application by JNS pyrolysis technique	J Mater Sci: Mater Electron	2.019	27	11646-11658
26	MM Parvathi, V Arivazhagan, <b>S Rajesh</b>	Quantum size effect on the layer by layer assembly of PbTe–InSe multilayer nanocomposite structures	Journal of Alloys and Compounds	2.99	646	96-100
27	A Mohan, <b>S Rajesh</b>	Impact of annealing on the investigation of In <sub>3</sub> Se <sub>2</sub> /Cu <sub>2</sub> Se/In <sub>3</sub> Se <sub>2</sub> sandwich structure prepared by thermal evaporation technique for solar cell applications	Superlattices and Microstructures	2.097	85	638-64
28	V Arivazhagan, MM Parvathi, <b>S Rajesh</b>	Complementary NIR absorption of ZnSe induced by multiple PbSe submonolayers by vacuum deposition technique	Vacuum	1.530	99	95-98
29	MM Parvathi, V Arivazhagan, <b>S Rajesh</b>	Quantum size effect on cubic PbTe nanocrystals embedded in amorphous InSe thin film matrix	Superlattices and Microstructures	2.097	75	901-90
30	MM Parvathi, V Arivazhagan, <b>S Rajesh</b>	Structural and optical properties of ZnSe thin films stacked with PbSe submonolayers	Applied Physics A	1.2	116 (4)	1773-1778
31	CARM Sahayaraj, A Mohan, V Arivazhagan, <b>S Rajesh</b>	Investigation on structural and optical properties of thermally evaporated SnSe thin films	Chalcogenide Letters	0.94	11 (2)	47-52

32	MM Parvathi, V Arivazhagan, S Rajesh	Observation on array of PbTe nanocrystals embedded in amorphous InSe multiple quantum wells	Vacuum	1.530	109	120-12
33	V Arivazhagan, MM Parvathi, S Rajesh, R Sæterli, R Holmestad	Quantum confinement of PbSe nanocrystals embedded in a spacer ZnSe matrix for solar cell applications	Solar Energy	3.469	106	38-42
34	MM Parvathi, V Arivazhagan, S Rajesh	Impact of barrier thickness on the strain effect in ZnSe/ZnS multiple quantum well structure	Superlattices and microstructures	1.564	59	40-46
35	V Arivazhagan, M Manonmani Parvathi, S Rajesh, Ragnhild Sæterli, Randi Holmestad	Quantum confinement in two dimensional layers of PbSe/ZnSe multiple quantum well structures	Applied Physics Letters	3.794	102 (24)	242110
36	V Arivazhagan, MM Parvathi, S Rajesh	Investigation of the quantum well width on the size effect of PbSe/ZnSe multiple quantum well structures by non-epitaxial growth	Journal of alloys and compounds	2.390	577	431-43
37	V Arivazhagan, MM Parvathi, S Rajesh	Study on the formation of PbSe nanoclusters at the interfaces of PbSe/ZnSe multiple quantum well structure	Physica E: Low-dimensional Systems and Nanostructures	1.522	53	120-12
38	V Arivazhagan, MM Parvathi, S Rajesh	Impact of thickness on vacuum deposited PbSe thin films	Vacuum	1.530	86 (8)	1092-1096
39	S Rajesh, MM Parvathi, A Mohan, V Arivazhagan	Preparation and characterization of vacuum evaporated SnSe and SnSe <sub>2</sub> multilayer thin films	AIP Conference Proceedings	N/A	1451 (1)	206-20
40	S Rajesh, V Arivazhagan, MM Parvathi	Structural, optical and electrical properties of vacuum evaporated PbSe/ZnSe multilayer thin films	AIP Conference Proceedings	N/A	1451 (1)	197-19
41	K Vadivel, V Arivazhagan, S Rajesh, A KUMAR, DK SAHU, AK GUPTA, ...	Room temperature ferromagnetism of Ni implanted SnO <sub>2</sub> nanopowders	Journal of Pure Applied and Industrial Physics	2.07	2 (1)	1-83



42	MMD Kumar, S Devadason, S Rajesh	Formation of CdSe/CdTe quantum dots in multilayer thin films using PVD method	AIP Conference Proceedings	N/A	1451 (1)	176-17
43	MMD Kumar, S Devadason, S Rajesh	Quantum Confinement in Cadmium Selenide Multilayer Thin Films Using Physical Vapour Deposition Method	Journal of Nano-and Electronic Physics	0.32	4 (2)	2021-1
44	V Arivazhagan, M Manonmani Parvathi, S Rajesh	Thickness dependence properties of vacuum deposited PbSe thin films	AIP Conference Proceedings	N/A	1447 (1)	627-62
45	V Arivazhagan, S Rajesh	Effect of selenium layer thickness on structural and optical properties of nanocrystalline PbSe multilayer thin films	Nano Science & Nano Technology: An Indian Journal	1.57	5(1)	
46	KP Devasenathipathi, V Arivazhagan, MM Parvathi, S Rajesh	Structural and optical properties of electro sprayed Tin oxide thin films	Journal of Nano-and Electronic Physics	0.32	3(4)	13
47	V Arivazhagan, MM Parvathi, S Rajesh	Optical studies on vacuum evaporated PbSe multilayer thin films	AIP Conference Proceedings	N/A	1391 (1)	104-10
48	J Suryakanth, V Arivazhagan, MM Parvathi, S Rajesh	Enhanced surface modification of mwcnt: indium and vanadium doped snO2 composite by sol-gel route and sonication	J. Ovonic Res	0.698	7	93-98
49	K Vadivel, V Arivazhagan, S Rajesh	Mn doped SnO2 Semiconducting magnetic thin films prepared by spray pyrolysis method	International journal of scientific & engineering research	1.1	2 (4)	1-5
50	J Suryakanth, V Arivazhagan, MM PARVATHI, S Rajesh	Functionalisation of MWCNT with SnO2 through sol-gel route	Journal of Optoelectronics and Biomedical Materials	0.42	3 (2),	31-38
51	V Arivazhagan, MM Parvathi, S Rajesh	Photoluminescence analysis on vacuum deposited PbSe multilayer thin films	Archives of Physics research	0.85	2	48-53

52	MM Parvathi, V Arivazhagan, A Mohan, S Rajesh	Optical and structural studies on Tin Selenide (SnSe) multilayer thin films	AIP Conference Proceedings	N/A	1391 (1)	108-11
53	V Arivazhagan, S Rajesh	Influence of In/Sn ratio on nanocrystalline Indium Tin Oxide thin films by spray pyrolysis method	Archives of Physics research	0.85	2 (1)	19-25
54	V Arivazhagan, S Rajesh	Preparation of nanocrystalline SnO <sub>2</sub> thin films for micro gas sensors	Journal of Ovonic research	0.698	6 (5)	221-22
55	V Arivazhagan, S Rajesh	Effect of cryo substrate on thermally evaporated PbSe multilayer thin films	Chalcogenide letters	0.51	7 (7)	465-47
56	V Arivazhagan, S Rajesh	Hall measurements on thermally evaporated PbSe multilayer thin films and effect of substrate temperature	Chalcogenide letters	0.51	7 (9)	547-55
57	J Suthagar, S Rajesh, K Perumal, T Balasubramaniam, ...	Growth and Characterization of Wide-Gap Cd 1-x Zn x Se Ternary Alloys by Using Electron Beam Evaporation Technique.	Acta Physica Polonica, A.	0.41	117 (3)	
58	S Rajesh, S Sam Baskar	Preparation of Nanocrystalline SMO Thin Films For Micro Gas Sensors	International Conference on Nanomaterials: NANO 2005:[proceedings]	N/A	2	667
59	S Rajesh, K Perumal	Characterization of antimony and fluorine doped tin oxide thin films for solar cell application	Transactions of the SAEST	0.31	37 (2)	63-65

*Details of the funded projects*

S.No	Project Title	Awarding Agency	Research Grand (Rs)
1	Pulsed laser deposition grown thin/thick film of LiV <sub>3</sub> O <sub>8</sub>	DST-SERB	45,00,000

	nanorods for lithium metal battery applications. (September 2018-2021).		
2	Program-Coordinator (M.Sc/M.Tech post graduate program in Nanoscience & Technology)	DST-Nano Mission	3.02 Crores

*Workshop/Symposium/Conference/Seminars organized*

S.No.	Author(s)	Title	Name of Journal	Volume	Page	Year
1	S. Cyril Robinson Azariah, J, Ponmudi Selvan, T., Samuel Rajasekar, M, Sheebha, I, Vidhya, B, <b>Rajesh</b>	Pulsed Laser Deposited Molybdenum Oxides (MoO <sub>3</sub> & MoO <sub>2</sub> ) Thin Films for Nanoelectronics Device Application	IEEE	144336	42-47	2019
2	S. Babu, S.K.S, Moni, D.J, Padickala, P.J, Azariah, J.C.R, <b>Rajesh</b>	Fabrication and Characterization of PLD Deposited Crystalline ZnO as Channel and Amorphous ZnO as Gate Dielectric of the Thin Film FET	IEEE	144336	301-304	2019
3	A Mohan, I Sheeba, B Jennifer Joana, D Alltrin, R Boopathi, S <b>Rajesh</b>	<a href="#">Surface modification of CZTS nanoparticles using reflux method for effective utilizing absorber material</a>	AIP conf.Proc.	1942	140037	2018
4	M. Melvin David Kumar, Suganthi Devadason, <b>S. Rajesh</b>	Formation of CdSe/CdTe quantum dots in multilayer thin films using PVD method	<b>AIP conf.Proc.</b>	1451	176-178	2012
5	V.Arivazhagan, M.Manonmani Arvathi, <b>S.Rajesh</b>	Structural, optical and electrical properties of vacuum evaporated PbSe/ZnSe multilayer thin film	<b>AIP conf.Proc.</b>	1451	197-199	2012
6	M.Manonmani Arvathi, A.Mohan, V.Arivazhagan,	Preparation and characterization of SnSe and SnSe <sub>2</sub> multilayer thin films	<b>AIP conf.Proc.</b>	1451	206-208	2012

	<b>S.Rajesh</b>					
7	V.Arivazhagan, M.ManonmaniP arvathi, <b>S.Rajesh,</b>	Optical studies on vacuum evaporated PbSe multilayer thin films,	<b>AIP conf.Proc.</b>	1391	104-107	2011
8	M.ManonmaniP arvathi, V.Arivazhagan, A.Mohan, <b>S.Rajesh,</b>	Optical and structural studies on Tin Selenide (SnSe) multilayer thin films,	<b>AIP conf. proc,</b>	1391	108-111	2011