



# ST. ALOYSIUS COLLEGE EDATHUA

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"LET THY DIVINE LIGHT SHINE MIRACULOUSLY"

## FACULTY PROFILE

### Personal Details

Name : **Dr Lakshmi Vijayan**

Department : Physics

Designation : Assistant Professor (Grade-III)

Educational Qualification : Ph.D.

Area of Specialisation : Material Science- Ac conductivity studies and Ion relaxation studies using impedance spectroscopy, Conducting Polymers

Email : [lakshmivijayan@gmail.com](mailto:lakshmivijayan@gmail.com)

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### Academic Identity

Employee ID : 716885

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### Research Parameters

Google scholar citations : 418

H index : 12

i10 index : 14

### Education

Sl. No.	Degree	Institution/University	Year
1	Ph.D.	Pondicherry Central University, Pondicherry	2012
2	M.Sc.	SPAP, M. G. University, Kottayam	2004
3	B.Sc.	BCM College, Kottayam	2001
4	Pre-Degree	KG College, Pampady	1998

### Career Profile

Sl. No.	Institution/Organization	Designation	Period
1	St. Aloysius College, Edathua	Assistant Professor (Grade-III)	2012 onwards

### Positions Held or Holding, if any

Sl. No.	Position	Period
1	Research Advisory Committee, Coordinator, St. Aloysius College, Edathua	2023 to 2025
2	Member, IQAC	2023 to 2025
3	Chairperson, Grievances Redressal Committee for College Union Election 2023-2024	2023
4	Member, College Staff council	2023 to 2025
5	Coordinator, Internal exam cell	2023 to 2025
6	Member, Anti-Narcotic cell	2023 to 2025
7	Member, Mobile squad Committee	2023 to 2025
8	Head of the Department of Physics	November 2023 onwards
9	Member, Women Cell	2017 to 2022
10	Coordinator, Nature and Energy Club	2023 -2025
11	Presiding Officer, Lok Sabha and Panchayat Election	2019, 2024
12	Member, Staff Council Executive	2019-2021
13	Secretary, Diamond Dual, Alumni Association, Department of Physics	2020-2023

### Research Publications

SI. No.	Research Publications
1.	Ion dynamics and structure of Lithium-Rich nanocrystalline $\text{Li}_2\text{NiZrO}_4$ R Cheruku, MVH Rao, A Srivastava, P Aruna, CM Joseph, Surya Bhaskaram, <b>Lakshmi Vijayan</b> Journal of Electroceramics, (2026) 1-8
2.	RajeshCheruku, D. Surya Bhaskaram, G.Govindaraj, <b>LakshmiVijayan</b> Nanocrystalline $\text{Li}_2\text{MoO}_4$ : Synthesis and electrical studies Journal of Alloys and Compounds 788(2019) 779-786
3.	Rajesh Cheruku, G Govindaraj, <b>Lakshmi Vijayan</b> Electrical relaxation, optical and magnetic studies of nanocrystalline lithium ferrite synthesized by different chemical routes Mater. Res. Express 4 (2017) 125008
4.	Rajesh Cheruku, G. Kruthika, G. Govindaraj, <b>Lakshmi Vijayan</b> Electrical relaxation studies of olivine type nanocrystalline $\text{LiMPO}_4$ (M=Ni, Mn and Co) materials Journal of Physics and Chemistry of Solids 86 (2015) 27
5.	Rajesh Cheruku, G. Govindaraj, <b>Lakshmi Vijayan</b> Super-linear frequency dependence of ac conductivity in nanocrystalline lithium ferrite Materials Chemistry and Physics 146 (2014) 389
6.	<b>Lakshmi Vijayan</b> , Rajesh Cheruku, G. Govindaraj Electrical, Optical and Magnetic investigations on $\text{LiNiPO}_4$ based Olivines Synthesised by Solution Combustion Technique Materials Research Bulletin 50 (2014) 341
7	Rajesh Cheruku, G. Govindaraj, <b>Lakshmi Vijayan</b> Ion dynamics in sol-gel synthesized $\text{Li}_2\text{Ni}_{1-x}\text{Mg}_x\text{TiO}_4$ nanocrystallites Materials Chemistry and Physics 141 (2013) 620
8	Viswarupa Mohanty, Rajesh Cheruku, G. Govindaraj, <b>Lakshmi Vijayan</b> Ce-substituted Lithium Ferrite: Preparation and electrical relaxation studies Journal of Material Science & Technology (2013) 1
9	Viswarupa Mohanty, Rajesh Cheruku, G. Govindaraj, <b>Lakshmi Vijayan</b> Synthesis, structure and electrical conductivity studies of inverse spinel $\text{Li}_{0.5}\text{Fe}_{2.5}\text{O}_4$ Indian Journal of Pure and Applied Physics 51 (2013) 381
10	Rajesh Cheruku, G. Govindaraj, <b>Lakshmi Vijayan</b> Structural and electrical conductivity studies of nanocrystalline $\text{Li}_2\text{NiTiO}_4$ material Indian Journal of Pure and Applied Physics 51 (2013) 343
11	<b>Lakshmi Vijayan</b> , Rajesh Cheruku, G. Govindaraj Structural and ac electrical properties of $\text{LiCoPO}_4$ synthesised by template free hydrothermal approach AIP Conf. Proc. 1512 (2013) 428, ISBN 978-0-7354-1133-3
12	Rajesh Cheruku, G.Govindaraj, <b>Lakshmi Vijayan</b> Electrical and magnetic properties of sol-gel synthesized nanocrystalline $\text{Li}_2\text{Ni}_{1-x}\text{Mg}_x\text{TiO}_4$ materials AIP Conf. Proc. 1512 (2013) 330, ISBN 978-0-7354-1133
13	Rajesh Cheruku, <b>Lakshmi Vijayan</b> , G. Govindaraj Ac conductivity studies of Solution Combustion Synthesized Nanocrystalline $\text{Li}_2\text{MgZrO}_4$ material AIP Conf. Proc. 1447 (2012) 345, ISBN 978-0-7354-1045-9
14	<b>Lakshmi Vijayan</b> , Rajesh Cheruku, G. Govindaraj Structure and Ion Transport in $\text{Li}_3\text{Fe}_2(\text{PO}_4)_3$ Synthesized by Solution Combustion Technique Journal of Applied Physics 111 (2012) 064905
15	<b>Lakshmi Vijayan</b> , Rajesh Cheruku, G. Govindaraj and S. Rajagopan Physical and electrical properties of combustion synthesized NASICON type $\text{Na}_3\text{Cr}_2(\text{PO}_4)_3$

	crystallites: Effect of Glycine molar ratios Materials Chemistry and Physics 130 (2011) 862-869.
16	Rajesh Cheruku, <b>Lakshmi Vijayan</b> , G.Govindaraj Electrical Conductivity Studies of Solution Combustion Synthesized Nanocrystalline $\text{Li}_2\text{NiZrO}_4$ material AIP Conf. Proc. 1349 (2011) 1013-1014
17	<b>Lakshmi Vijayan</b> , and G. Govindaraj Structural and electrical properties of high-energy ball milled NASICON type $\text{Li}_{1.3}\text{Ti}_{1.7}\text{Al}_{0.3}(\text{PO}_4)_{2.9}(\text{VO}_4)_{0.1}$ ceramics Journal of Physics and Chemistry of Solids 72 (2011) 613-619.
18	<b>Lakshmi Vijayan</b> , Rajesh Cheruku, G. Govindaraj and S. Rajagopan Ion dynamics in combustion synthesized $\text{Na}_3\text{Cr}_2(\text{PO}_4)_3$ crystallites Materials Chemistry and Physics 125 (2011) 184–190.
19	<b>Lakshmi Vijayan</b> and G. Govindaraj Impedance spectroscopic studies of planetary ball-milled lithium titanium phosphate material Physica B: Physics of Condensed Matter 404 (2009) 3539–3543.

#### Research Projects

S. No.	Title of the Project	Funding Agency	Amount	Period
1.	<b>Minor Research project</b> Title: Investigations on Electrical, Magnetic, Electrochemical behaviour of NASICON and Olivine Materials.	UGC	Rs. 200000/-	2014

#### Seminar/ Workshops Organized

S. No.	Title of the Seminar/ Workshop	Funding Agency	Amount	Date
1.	EUREKA CORAL 2016: Workshop for School students	KSCSTE funded	Rs. 20,000/-	10th -11th November 2016
2.	Coordinator of Women Cell Inauguration of by Hon. Dist. Collector, Ms. Anupama IAS	KSWDC funded	Rs. 25,000/-	19 December 2017.
3	Coordinator of Women cell training programme on Fabric painting			3 <sup>rd</sup> March 2018.
4	Coordinator of Celebration of International Women's Day: Invited talk by Dr. Ancy Joseph			8 March 2018.
5	Coordinator of Dr. Varghese Mathew Endowment Elocution competition,	Nil	-----	14 <sup>th</sup> February 2019.
6	Coordinator of the poster designing competition	ICDS cell- Alappuzha district	----	7 <sup>th</sup> February 2019.
7	Coordinator of Celebration of International <i>Women's Day</i>	KSWDC funded	Rs. 10,000/-	21 <sup>st</sup> March 2019.

8	Coordinator of talk on Violence against Women: Laws and Latches to Justice by Adv. Raji P Joy	KSWDC	Rs. 10,000/-	19 <sup>th</sup> December 2019.
9	Coordinator of Celebration of International Women's Day by Mrs. Manju Nair, SI, Mavelikara			6 <sup>th</sup> March 2020
10	Coordinator of a National webinar series on the topic "Gender Bias and Gender Equality" by Divya. K and Dr. Amruthraj R M			17 <sup>th</sup> -18 <sup>th</sup> September 2020.
11	Coordinator of Invited talk on Global Environmental Pollutants by Dr. Mahesh Mohan organised by Nature and Energy Club and Department of Physics.	Nil	----	9 <sup>th</sup> January 2020
12	Coordinator of Sabu Jacob Memorial all Kerala Intercollegiate Quiz Competition	Nil	----	24 <sup>th</sup> January 2020
13	Coordinator of Environmental Day celebrations: International Webinar on Ecosystem Restoration, organised by Nature and Energy Club and Department of Physics	Nil	----	5 <sup>th</sup> June 2021.
14	NATIONAL TEACHERS' DAY CELEBRATION	Nil		<b>6<sup>th</sup> September 2021</b>
15	National Energy Conservation Day	Nil		<b>14<sup>th</sup> December 2021</b>
16	Diamond DUAL 2021, Alumni meet			13 <sup>th</sup> February 2021
17	Coordinator of Commemoration of great scientists, student presentation series-I	Nil		12.8.2021, 06.01.2022 04.02.2022
18	Coordinator - word space week celebrations	Nil		5 <sup>th</sup> to 8 <sup>th</sup> October 2021.
19	Coordinator - APT-Talent Search Examination	Nil		2022
20	Coordinator - NATIONAL SCIENCE DAY CELEBRATIONS 2022	APT, Kerala		<b>26<sup>th</sup> February 2022</b>
21	Coordinator -DIAMOND DUAL 2022	Nil		<b>23.04.2022</b>
22	Coordinator- Two-day Workshop on Experiments utilizing ExpEYES	APT	Rs. 5000	21 <sup>st</sup> - 22 <sup>nd</sup> February 2024

23	Coordinator- National Energy Conservation Day-Energy Conservation Awareness Campaign and Survey	Nil		18 <sup>th</sup> December 2023,
24	Coordinator- 10 <sup>th</sup> Dr. Varghese Mathew Endowment Elocution Competition	Nil		14 <sup>th</sup> February 2024

### Research Projects

Sl. No.	Title of the Project	Funding Agency	Amount	Period
1	Investigations on Electrical, Magnetic, Electrochemical behaviour of NASICON and Olivine Materials Role	UGC	Amount: 200000	Year: 2014-2016

### Awards/Achievements

Sl. No.	Details	Year
1.	<b>STANDARD REFERENES</b>  XRD pattern in two publications: (1) <i>Materials Chemistry and Physics</i> 130 (2011) 862-869 (2) <i>Journal of Physics and Chemistry of Solids</i> 72 (2011) 613-619 have been selected as standard references in powder diffraction file of International Centre for Diffraction Data (ICDD).	2011
2.	<b>Editor</b> <b>1. Proceedings of UGC sponsored National Seminar</b> 3 <sup>rd</sup> UGC sponsored National Seminar on “Recent Trends in Nano and other Materials for Energy Efficient Devices” Department of Physics, July 20-22, 2017. The national seminar was co-sponsored by Kerala State Council for Science, Technology and Environment, Thiruvananthapuram.  <b>2. Eureka – Manual of Experiments of a two-day workshop</b> “EUREKA” 10th -11th November 2016  <b>3. Book entitled” Multi-Disciplinary Journal of St. Aloysius College”</b> published on January 2024 <b>ISBN: 978-93-6013-092-3</b>	2017, 2016, 2024
3	<b>Journal Reviewer</b>  <b>Journal of Luminescence (2017)</b>	

SI. No.	Book Details
1.	Book chapter entitled “Synthesis and Characterization of Lithium Ferrite Nanoparticles” <b>Lakshmi vijayan</b> , Cincila T Joy, Akshaya Sali Multi-Disciplinary Journal of St. Aloysius College, Chapter 8, 39-44, January 2024 <b>ISBN: 978-93-6013-092-3</b>
2.	Book chapter entitled “NASICON Materials: Structure and Electrical properties” <b>Lakshmi Vijayan</b> , G. Govindaraj Polycrystalline Materials, Chapter 4, p. 77-106, <b>ISBN: 978-953-307-934-9.</b>
3.	Book chapter entitled “ <i>Electron Microscopic Studies on the Lithium Ion Conducting Materials</i> ” Rajesh Cheruku, <b>Lakshmi Vijayan</b> , G.Govindaraj Current Microscopy Contributions to Advances in Science and Technology (A. Méndez-Vilas, Ed.), Formatex Research Center, Vol. 2, p. 1312-1323, December 2012., <b>ISBN (13): 978-84-939843-6-6</b>

#### Invited Lectures/ Paper Presentations in Conferences

SI. No.	Conference & Presentation Details
1.	Presented a paper (oral) in International Conference on Recent Advances in Materials Science and Computational Techniques (RAMSACT-2025), December 18–20, 2025, Manipal University Jaipur Polypyrrole Thin Film- Structural, Optical and Electrical Study Lakshmi Vijayan, Lincy K Alex, Anusree M Nathan and Rajesh Cheruku
2	68 <sup>th</sup> DAE-Solid State Physics Symposium, December 18 - 22, 2024, at BARC, Mumbai. Nanocrystalline $\text{Na}_{0.5}\text{Fe}_{2.5}\text{O}_4$ : A Study of Optical, Magnetic, and Impedance Spectroscopy Rajesh Cheruku, Lakshmi Vijayan Electronic and Optical Characterization of Polypyrrole Thin Films: A UV -Visible Absorption Study Lincy K Alex & Lakshmi Vijayan
3	37 <sup>th</sup> Kerala Science Congress, 07-10 February 2025, Kerala Agricultural University, Thrissur Study on the effect of Oxidant to Monomer ratio on optical and electrical properties of Polypyrrole thin films
4	Kerala Science Congress, Govt. Brennen College, Thalasserry, 28 <sup>th</sup> -30 <sup>th</sup> Jan, 2018 Lakshmi Vijayan, Srijitha Menon, Krishnaveni M. Hydrothermal Synthesis of $\text{LiMnPO}_4$
5	59 <sup>th</sup> DAE Solid State Physics Symposium, 16 <sup>th</sup> -20 <sup>th</sup> December, 2014, VIT, Vellore Electrical conductivity of Graphene Wrapped nanocrystalline $\text{LiMnPO}_4$ Rajesh Cheruku, G.Govindaraj, D. Surya Bhaskaram, Lakshmi Vijayan



6	58 <sup>th</sup> DAE Solid State Physics Symposium, 17 <sup>th</sup> -21 <sup>st</sup> December, 2013, Thapar University, Patiala. Template Free Hydrothermal Synthesis of LiMnPO <sub>4</sub> Lakshmi Vijayan, Rajesh Cheruku, G.Govindaraj
7.	57 <sup>th</sup> DAE Solid State Physics Symposium, 03 <sup>rd</sup> – 07 <sup>th</sup> December, 2012, IIT Bombay, Powai, Mumbai. (a) Electrical and Magnetic Properties of Sol-Gel synthesised Nanocrystalline Li <sub>2</sub> Ni <sub>1-x</sub> Mg <sub>x</sub> TiO <sub>4</sub> materials Rajesh Cheruku, Lakshmi Vijayan, G.Govindaraj (b) Structural and AC electrical Properties of LiCoPO <sub>4</sub> synthesised by Template Free Hydrothermal Approach Lakshmi Vijayan, Rajesh Cheruku, G.Govindaraj
8	56 <sup>th</sup> DAE Solid State Physics Symposium, December, 2011 Ac conductivity studies of solution combustion synthesized nanocrystalline Li <sub>2</sub> MgZrO <sub>4</sub> material Rajesh Cheruku, Lakshmi Vijayan, G. Govindaraj
9	11 <sup>th</sup> Asian Conference of Solid State Ionics An alternate approach for Jonscher's power law: Complex impedance spectra analysis of glassy materials G. Govindaraj, Lakshmi Vijayan New Materials for Pollution Free Energy Devices, 2008, p. 395-400 (Eds. B. V. R. Chowdari <i>et. al.</i> ), <b>ISBN: 023-063-567-9.</b>
10	5 <sup>th</sup> Asian Conference on Electrochemical Power Sources, Singapore, 17th-20th September, 2010 Electrical relaxation studies of nano-crystalline Li <sub>3</sub> Fe <sub>2-x</sub> Mg <sub>x</sub> (PO <sub>4</sub> ) <sub>3</sub> synthesised by solution combustion synthesis Lakshmi Vijayan, G.Govindaraj, S. Rajagopan
11	12 <sup>th</sup> Asian Conference of Solid State Ionics, (a) Anomalous relaxation and ac conductivity in ion conducting solids Fundamental Researches and Technological Applications, 2010, p. 357-363 (Eds. B. V. R. Chowdari <i>et. al.</i> ), <b>ISBN: 978-7-5629-3159-1</b> G. Govindaraj, Lakshmi Vijayan, OdileBohnke (b) Electrical relaxation studies of nano-crystalline Na <sub>3</sub> Cr <sub>2</sub> (PO <sub>4</sub> ) <sub>3</sub> prepared by solution combustion Lakshmi Vijayan, Rajesh Cheruku, G. Govindaraj, S. Rajagopan Fundamental Researches and Technological Applications, 2010, p. 112-119
12	6 <sup>th</sup> Asian Conference on Electrochemical Power Sources, Chennai, January, 2012 (a) Ac Electrical Relaxation and Electrochemical Studies in LiNiPO <sub>4</sub> based Olivine Systems Synthesized by Solution Combustion Technique Lakshmi Vijayan, Rajesh Cheruku, G.Govindaraj, C. Nithya, S. Gopukumar (b) Electrical and Electrochemical studies of Solution Combustion Synthesized Nanocrystalline Li <sub>2</sub> NiZrO <sub>4</sub> material Rajesh Cheruku, Lakshmi Vijayan, G.Govindaraj, C. Nithya, S. Gopukumar
13	7 <sup>th</sup> National Conference on Solid State Ionics Analysis of LiPO <sub>3</sub> glassy system with Jonscher's universal power law and recently proposed non-Debye dielectric relaxation function G. Govindaraj, Lakshmi Vijayan Proceedings of 7th National Conference on Solid State Ionics, Solid State Ionics and



	Its Applications, 2006, p. 96, <b>ISBN: 13:978-1403-93024-8</b>
14	51 <sup>st</sup> DAE Solid State Physics Symposium Non-power law approach to study ac conduction and analysis of LiPO3 glassy system G. Govindaraj, Lakshmi Vijayan
15	52 <sup>nd</sup> DAE Solid State Physics Symposium Hopping ion dynamics and relaxation process in NASICON type glassy system Lakshmi Vijayan, G. Govindaraj
16	53 <sup>rd</sup> DAE Solid State Physics Symposium, 2008 DC and AC conductivity duality in ion conducting solids G. Govindaraj, OdileBohnke, Lakshmi Vijayan
17	54 <sup>th</sup> DAE Solid State Physics Symposium, 2009 Solution combustion synthesis of Na <sub>3</sub> Cr <sub>2</sub> (PO <sub>4</sub> ) <sub>3</sub> material Lakshmi Vijayan, Rajesh Cheruku, G. Govindaraj, S. Rajagopan
18	9 <sup>th</sup> National Conference on Solid State Ionics, December, 2011 Structural and electrical conductivity studies of nanocrystalline Li <sub>2</sub> NiTiO <sub>4</sub> material Rajesh Cheruku, Lakshmi Vijayan, G. Govindaraj