

MAR IVANIOS COLLEGE (AUTONOMOUS)

FACULTY PROFILE

NAME	Dr.MATHEW.C.T		
DEPARTMENT	Physics		
DESIGNATION	Assistant Professor		
ADDRESS	Christ Bhavan, BNA-32, Bethany Nagar Nalanchira, Thiruvananthapuram Kerala-695015		
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ACADEMIC QUALIFICATIONS (with name of degree awarding University)	<ul style="list-style-type: none"> • PhD Physics University of Kerala 2017 • MSc Physics University of Kerala 2003 • BSc Physics University of Kerala 2001 		
TEACHING EXPERIENCE	LEVEL	YEARS OF SERVICE	INSTITUTION
	MSc	1	Mar Ivanios College, Thiruvananthapuram
	BSc	1	Mar Ivanios College, Thiruvananthapuram
	Higher Secondary	12	St.Mary's HSS, Pattom
SPECIALIZATION	Materials Science		
PUBLICATIONS/ PARTICIPATION IN SEMINARS/ CONFERENCES ETC		INTERNATIONAL	NATIONAL
	NO. OF RESEARCH PAPERS IN JOURNALS	17	0
	NO. OF PUBLICATIONS IN CONFERENCE PROCEEDINGS	8	3
	NO. OF CONFERENCES PARTICIPATED IN	3	3
PROJECTS	Nil		
DETAILS OF RESEARCH SUPERVISION	NO OF STUDENTS AWARDED PHD: Nil NO. OF STUDENTS WITH SUBMITTED DISSERTATIONS: Nil NO. OF CURRENT STUDENTS: Nil		
HONOURS AND AWARDS			
POSTS HELD			
ANY OTHER INFORMATION			
PHOTO			

ACADEMIC PROFILE

Degree	Board/University	Year of Passing	Subject	Class
Secondary School	Board of Secondary Education-Kerala	1995	All	First class
Pre-Degree	University of Kerala	1997	Science	First Class
BSc	University of Kerala	2001	Physics	First Class
MSc	University of Kerala	2003	Physics	First Class
BEEd	University of Kerala	2004	Physical Science	First Class
PhD	University of Kerala	2017	Physics (Infrared Transparent Ceramics)	First Class

SET (State Eligibility Test- Government of Kerala) 2005

Second position in PhD entrance test conducted by University of Kerala 2010.

RESEARCH EXPERIENCE

Institution	Years	Remarks
Mar Ivanios College, Nalanchira Thiruvananthapuram	5 Years PhD University of Kerala	Under the guidance of Dr.Jijimon K Thomas Associate Professor, Department of Physics Mar Ivanios College
Mar Ivanios College, Nalanchira Thiruvananthapuram	3 Years DST-SERB Project Government of India	Principal Investigator, Dr.Jijimon K Thomas, Associate Professor, Department of Physics Mar Ivanios College
Mar Ivanios College, Nalanchira Thiruvananthapuram	1 Year	Electronic Materials Research Laboratory

TEACHING EXPERIENCE

Institution	Designation	Service period
Sarvodaya Vidyalaya, Nalanchira, Thiruvananthapuram	Teacher (XI & XII ISC, HSE & CBSE)	2004 June- 2007 January
St.Mary's HSS, Kizhakkemkara Kottarakkara	HSST Physics Junior	2007 January- 2007 July
St.Mary's HSS, Pattom Thiruvananthapuram	HSST Physics Senior	2007 July -2019 June
Mar Ivanios College, Nalanchira Thiruvananthapuram	Assistant Professor	2019 June Onwards

STUDENT PROJECTS

Sl.No	Course	Number of projects guided
1	MSc	2
2	BSc	1

PATENT

1. Patent application filed through KSCSTE, Government of Kerala

No: 026/PF-PIC/2017/KSCSTE

“Novel sintering technique by coupling resistive and microwave heating (resistive coupled microwave sintering) to fabricate nanocrystalline metal/non-metal/ceramic, single or multicomponent oxides with very high density, reduced grain size, enhanced infrared transmittance and extra hardness for Infrared domes and windows.” (Under Review).

RESEARCH PUBLICATIONS IN REFEREED (SCI) JOURNALS WITH ISSN

NUMBER

- 1. Mathew C T**, Sam Solomon, Jacob Koshy and Jijimon K Thomas, Infrared transmittance of hybrid microwave sintered yttria, *Ceramics International*, 41[8] (2015) 10070-10078. DOI : 10.1016/j.ceramint.2015.04.100. ISSN : 02728842, e-ISSN :18733956.
- 2. Mathew C T**, Vidya S, Jacob Koshy, Sam Solomon and Jijimon K Thomas, Enhanced infrared transmittance properties in ultrafine MgAl₂O₄ nanoparticles synthesised by a single step combustion method, followed by hybrid microwave sintering, *Infrared Physics and Technology*, 72 (2015) 153-159. DOI: 10.1016/j.infrared.2015.08.002. ISSN : 13504495, e-ISSN : 18790275.
- 3. C T Mathew**, Sam Solomon and J K Thomas, Structural, Optical and Vibrational Characterization of Infrared -Transparent Nanostructured MgAl₂O₄ Synthesized by a Modified Combustion Technique, *Materials Today : Proceedings*, 2 [3] (2015) 954-958. DOI : 10.1016/j.matpr.2015.06.015. ISSN : 22147853.
- 4. C T Mathew**, S. Solomon, J. Koshy and J.K.Thomas, Microwave Sintering of Infrared-Transparent Nanostructured MgAl₂O₄ Synthesized by a Modified Combustion Technique, *International Journal of Engineering Research and Technology Conference Proceedings*, 3[8] (2015) 29-32.
- 5. Mathew Christopher**, Sam Solomon, Jacob Koshy and Jijimon Thomas, Hybrid microwave sintering of infrared transparent nanoY₃Al₅O₁₂ synthesized by a modified combustion technique, *International Journal of Applied Ceramic Technology*, 13[5] (2016) 920-928. DOI : 10.1111/ijac.12559. ISSN : 1546542X, e-ISSN : 17447402
- 6. Mathew C T**, Jijimon K Thomas, Swapna Y V, Jacob Koshy and Sam Solomon, A comprehensive analysis of the influence of resistive coupled microwave sintering on the optical, thermal and hardness properties of infrared transparent yttria-magnesia composites, *Ceramics International*, 43[18] (2017) 17048-17056. DOI : 10.1016/j.ceramint.2017.09.117. ISSN : 02728842, e-ISSN :18733956
- 7. Mathew C T**, Sam Solomon, Jacob Koshy and Jijimon K Thomas, Enhanced infrared transmission characteristics of microwave sintered Y₂O₃-MgO nanocomposite, *Bulletin of Materials Science*, 40(6) (2017) 1171-1178. DOI : 10.1007/s12034-017-1474-1. ISSN : 02504707, e-ISSN : 09737669.
- 8. J K Thomas, C T Mathew**, S. Solomon and J. Koshy, Influence of La³⁺ ion in the Yttria matrix in improving the microhardness of infrared transparent nano La_xY_{2-x}O₃ sintered via hybrid heating, *Journal of Advanced Ceramics*, 6 (3) (2017) 240-250. DOI : 10.1007/s40145-017-0235-3. ISSN : 22264108, e-ISSN : 22278508.
- 9. Mathew C T**, Jijimon K Thomas, Swapna Y V, Jacob Koshy and Sam Solomon, Effect of resistive coupled microwave sintering on the microhardness and thermal properties of infrared

transparent nano yttria, International Journal of Materials Science, 12 [2] (2017) 239-258. ISSN : 09734589.

10. Mathew.C.T, Enhancing the microhardness of Magnesium aluminate spinel by resistive coupled microwave sintering for infrared transparent window application, International Journal of Advanced Research in Engineering and Technology, 9[3] (2018) 200-208. ISSN : 09766480, e-ISSN : 09766499.

11. Mathew.C.T, Effect of resistive coupled microwave sintering on the microhardness of $Y_3Al_5O_{12}$, International Journal of Applied Engineering Research, 14 (2018) 11491-11494. ISSN : 09734562.

12. Mathew.C.T, Effect of sintering mechanism on the thermal properties of $MgAl_2O_4$, Journal of Emerging Technologies and Innovative Research, 5[7] (2018) 675-680. DOI : 10.1729/IJCRT.18047. ISSN : 23495162.

13. C.T Mathew, Ancy Das, Jacob Koshy and Jijimon K Thomas, Microwave assisted sintering of nanostructured infrared transparent $Nd_{0.1}Y_{1.9}O_3$ ceramics synthesized by a modified combustion technique, IOP Conference Series; Materials Science and Engineering, 360 (2018) 012023. DOI : 10.1088/1757-899X/360/1/012023. ISSN : 1757899X, e-ISSN : 17578981.

14. Jijimon K. Thomas, C.T Mathew, Effect of microwave sintering in enhancing the infrared transmittance properties of combustion synthesized nanostructured Y_2O_3 ceramics comprising La^{3+} ion in the matrix, IOP Conference Series; Materials Science and Engineering, 360 (2018) 012008. DOI : 10.1088/1757-899X/360/1/012008. ISSN : 1757899X, e-ISSN : 17578981.

15. Mathew.C.T, Tuning the optical and mechanical properties of Y_2O_3 ceramics by the inclusion of La^{3+} ion in the matrix for infrared transparent window application , International Journal of Advanced Research in Engineering and Technology, 10[2] (2019) 1-13. ISSN : 09766480, e-ISSN : 09766499.

16. Steffy Maria Jose, C.T Mathew, Sam Solomon and Jijimon K Thomas, Effect of Cerium Oxide in Reinforcing the Properties and Densification of Yttria Ceramics, AIP Conference Proceedings, 2162, 020153 (2019) 1-8, DOI: 10.1063/1.5130363, ISSN : 0094243X, e-ISSN : 155-7616.

17. Steffy Maria Jose, C.T Mathew and Jijimon K Thomas, Fabrication of Dysprosium doped Y_2O_3 infrared transparent by a microwave sintering technique, Materials Today : Proceedings, 24 [4] (2020) 2383-2392. DOI : 10.1016/j.matpr.2020.03.768. ISSN : 22147853

INTERNATIONAL /NATIONAL SEMINAR PRESENTATIONS

1. C T Mathew, Sam Solomon and J K Thomas, *Structural, Optical and Vibrational Characterization of Infrared -Transparent Nanostructured $MgAl_2O_4$ Synthesized by a Modified Combustion Technique*, International Conference on Perspectives of Vibrational Spectroscopy (ICOPVS-2014), Thiruvananthapuram, Kerala (2014).

2. C T Mathew, Ancy Das, Jacob Koshy and Jijimon K Thomas, *Microwave assisted sintering of nanostructured infrared transparent $Nd_{0.1}Y_{1.9}O_3$ ceramics synthesized by a modified combustion technique*, International Conference on Materials Science and Technology (ICMST 2016), Department of Physics, St.Thomas College, Palai, Kerala (2016).

3. C T Mathew, S. Solomon , J. Koshy and J.K.Thomas , *Microwave Sintering of Infrared-Transparent Nanostructured $MgAl_2O_4$ Synthesized by a Modified Combustion Technique*, National Seminar on New Materials and Nanotechnology (NSNMN), Heera College of Engineering and Technology, Thiruvananthapuram, Kerala (2015).

4. C T Mathew, Sahithya S Unnithan, Sam Solomon , Jacob Koshy and Jijimon K.Thomas , *Infrared-Transparent Nanostructured $La_{0.3}Y_{1.7}O_3$ Synthesized by a Modified Combustion Technique*, National Seminar on Advanced Materials Characterization and Techniques (AMCT'15), Department of Physics, Univeristy of Kerala , Thiruvananthapuram, Kerala (2015).

5. **C T Mathew** and Jijimon K Thomas, *UV and IR transmittance of microwave sintered nanocrystalline yttria ceramics*, Annual researchers' day, Mar Ivanios College, Thiruvananthapuram, Kerala (2015).
6. **C T Mathew**, Jacob Koshy and Jijimon K.Thomas , *Microwave assisted sintering of Nanostructured Infrared-Transparent Y₂O₃-MgO Composites Synthesized by a Modified Combustion Technique*, National Seminar on Advanced Analytical Techniques(NSAAT 2016), Mar Ivanios College , Thiruvananthapuram, Kerala (2016).
7. Jijimon K Thomas, **Mathew C T**, Jacob Koshy and Sam Solomon, *Improved infrared transmission characteristics by hybrid sintering of combustion synthesized Y₂O₃-MgO nanocomposite*, International Conference on Nanotechnology, Nanomaterials & Thin Films for Energy Applications (NANOENERGY 2015), Manchester Conference Centre, Manchester, United Kingdom (2015).
8. Steffy Maria Jose, **C T Mathew** and Jijimon K Thomas, *Effect of Dy₂O₃ addition in nanostructured Yttria (Y₂O₃) ceramics in improving the IR transmission characteristics for IR windows and domes*, International Conference on Materials Science and Technology (ICMST 2016), Department of Physics, St.Thomas College, Palai, Kerala (2016).
9. Jijimon K.Thomas and **C T Mathew** *Effect microwave sintering in enhancing the infrared transmittance properties of combustion synthesized nanostructured Y₂O₃ ceramics comprising La³⁺ ion in the matrix*, International Conference on Materials Science and Technology (ICMST 2016), Department of Physics, St.Thomas College, Palai, Kerala (2016).
10. **C T Mathew** and Jijimon K Thomas, *Hybrid Sintering of Infrared-Transparent Nanostructured La_{0.15}Y_{1.85}O₃ Synthesized by a Modified Combustion Technique*, Annual researchers' day, Mar Ivanios College, Thiruvananthapuram, Kerala (2016).
11. Y V Swapna, J K Thomas, **C T Mathew** , J S Lakshmi, Steffy Maria Jose and S Solomon, *Synthesis and characterization of hydroxyapatite nanoparticles using a novel combustion technique for bone tissue engineering*, International Conference on Molecular Spectroscopy (ICMS 2017), Mahatma Gandhi University, Kottayam, Kerala (2017).
12. Steffy Maria Jose, J K Thomas, Y V Swapna, , J S Lakshmi, **C T Mathew** and S Solomon, *Synthesis and characterization of ZnO-Y₂O₃ nanocomposites for their application as infrared transparent materials*, International Conference on Molecular Spectroscopy (ICMS 2017), Mahatma Gandhi University, Kottayam, Kerala (2017).
13. **C T Mathew** and Jijimon K Thomas, *Resistive coupled microwave sintering of Y₃Al₅O₁₂ for infrared transparent window applications*, International Conference on Recent Trends in Materials Science and Technology (ICMST 2018), IISER, Thiruvananthapuram, Kerala (2018).

OTHER ACHIEVEMENTS

1. **BEST OUTGOING STUDENT** : BEd Physical Science Class (2003-04), Mar Theophilus Training College, Nanlanchira, Thiruvananthapuram.
2. **SECOND POSITION IN PhD ENTRANCE TEST** conducted by University of kerala 2010.
3. **BEST PAPER AWARD, C T Mathew**, Sahithya S Unnithan, Sam Solomon , Jacob Koshy and Jijimon K.Thomas , *Infrared-Transparent Nanostructured La_{0.3}Y_{1.7}O₃ Synthesized by a Modified Combustion Technique*, National Seminar on Advanced Materials Characterization and Techniques (AMCT'15), Department of Physics, University of Kerala , Thiruvananthapuram, Kerala (2015).
4. **BEST PAPER AWARD, C T Mathew** and Jijimon K Thomas, *Hybrid Sintering of Infrared-Transparent Nanostructured La_{0.15}Y_{1.85}O₃ Synthesized by a Modified Combustion Technique*” Annual researchers' day, Mar Ivanios College, Thiruvananthapuram, Kerala (2016)
5. **BEST PAPER AWARD, C T Mathew**, S Solomon , J Koshy and J K Thomas , *Microwave Sintering of Infrared-Transparent Nanostructured MgAl₂O₄ Synthesized by a Modified Combustion Technique*, National Seminar on New Materials and Nanotechnology (NSNMN), Heera College of Engineering and Technology, Thiruvananthapuram, Kerala (2015).
6. **BEST POSTER AWARD, C T Mathew**, Jacob Koshy and Jijimon K.Thomas, *Microwave assisted sintering of Nanostructured Infrared-Transparent Y₂O₃-MgO Composites Synthesized by a*

Modified Combustion Technique, National Seminar on Advanced Analytical Techniques (NSAAT 2016), Mar Ivanios College, Thiruvananthapuram, Kerala (2016).