


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 | | |
| TELEPHONE NUMBER(S) | 9847220070 | | |
| EMAIL ID(S) | drmatthewct@gmail.com , mathew.ct@mic.ac.in | | |
| 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 |
| BE | 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, Kizhakkekara 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 MgAl_2O_4 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 MgAl_2O_4 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 MgAl_2O_4 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 nano $\text{Y}_3\text{Al}_5\text{O}_{12}$ 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 Y_2O_3 - 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 La^{3+} ion in the Yttria matrix in improving the microhardness of infrared transparent nano $\text{La}_x\text{Y}_{2-x}\text{O}_3$ 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 Y_2O_3 -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 Y_2O_3 -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 Dy_2O_3 addition in nanostructured Yttria (Y_2O_3) 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 Y_2O_3 ceramics comprising La^{3+} 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 $La_{0.15}Y_{1.85}O_3$ 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 - Y_2O_3 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 $Y_3Al_5O_{12}$ 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 $La_{0.3}Y_{1.7}O_3$ 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 $La_{0.15}Y_{1.85}O_3$ 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 $MgAl_2O_4$ Synthesized by a Modified Combustion Technique*, National Seminar on New Materials and Nanotechnology (NSNMN), Heera College of Engineering and Technology, Thiruvananthapuram, Kerala (2015).
6. **BEST POSTER AWARD**, **C T Mathew**, Jacob Koshy and Jijimon K.Thomas, *Microwave assisted sintering of Nanostructured Infrared-Transparent Y_2O_3 -MgO Composites Synthesized by a*

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