Dr. Ramesh Sivasamy

CONTACT INFORMATION

Postdoctoral Researcher,
Departamento de Química
Universidad Tecnológica Metropolitana
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ACADEMIC BACKGROUND

- ✓ **Ph.D. in Chemistry,** Pondicherry University, Pondicherry, India. **Nov-2013**

  Thesis Title: Sol-Gel Synthesis, Structure and Characterization of $Ag_{3(2+x)}A_xTi_{4-x}O_{11+\Delta}$(A= Gd And Al) and $Ag_{3(2+x)}B_xNb_{4-x}O_{11+\Delta}$ (B= Pr and In) ($0.0 \leq x \leq 1.0$) Nanocomposites.

- ✓ **M.Phil. in Chemistry,** Pondicherry University, Pondicherry, India. **May-2006**
  Thesis Title: Sol-gel Synthesis, Structure, and Characterization of $Nd_{2x}Cd_{2-3x}SiO_4$ ($0.01 \leq x \leq 0.21$) Nanocomposites.

- ✓ **M. Sc. in Chemistry,** Bharathidasan University, Tiruchirappalli, India. **May-2005**
- ✓ **B. Sc. in Chemistry,** Bharathidasan University, Tiruchirappalli, India. **May-2003**

EMPLOYMENT HISTORY

- **Postdoctoral Researcher,** Departamento de Química, Universidad Tecnológica Metropolitana, Santiago, Chile **March-2021**
- **Post-doctoral fellow,** Department of Chemical Engineering, Biotechnology, and Materials, FCFM, University of Chile, Santiago, Chile **Sep 2015- Mar 2020**
- **Assistant professor**
  Department of Science and Humanities, Saveetha School of Engineering, Saveetha University, Chennai, India **Mar 2015- Sep 2015**
- **Research Associate**
  New chemistry unit, Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bangalore, India **Aug 2014- Mar 2015**
- **Assistant professor**
  Department of Science and Humanities, Saveetha School of Engineering, Saveetha University, Chennai, India **Jul 2011- Aug 2014**
- **Meritorious Research Fellow**
  Graduate Student, Materials chemistry Laboratory, Pondicherry University, **Sep 2008- Mar 2010**

RESEARCH INTEREST

- Synthesis and state of the art of the metal oxide nanocomposites, Heusler compounds, and rare earth based intermetallics.
- Metal chalcogenides for electrochemical and thermoelectric applications.
- Two-dimensional (2D) nanosheets and heterostructure sheets.
- Experimental and First-Principle calculations of Electronic structure, optical, work function, Photocatalytic, thermodynamical, and thermoelectric properties Calculations of solid-state materials.

ACADEMIC INTEREST

● Solid-State Chemistry, ● Inorganic and Materials Chemistry, ● Basic Principles of Spectroscopy, ● Advanced Materials Synthesis and Characterization ● Electrochemistry

Skills

- ***Synthesis techniques:*** Sol-gel, hydrothermal, co-precipitation, arc melting, induction furnace, flex method, melt quenching, ball mill, and deposition methods

- ***Instrument Handled and Characterization*:** Powder X-ray diffraction, UV-Visible, Infrared Spectroscopy, Electron paramagnetic resonance, Electron Microscope with Energy Dispersive X-ray analysis, Vibrating Sample Magnetometer, Thermal Analysis, and Electrochemical studies.

- ***Materials chemistry software packages:*** CASTEP, Dmol3, Wien2k, VASP, and Gaussian, (DFT Studies); Gauss view, Spartan, Chemoffice, Vesta (Modelling); Fullproff, Match, ICSD, CCDC, x-powder, EVA, and Xpert high score plus, WInGx and Olex (Structural analysis).

Fellowship HONORS AND AWARDS

- **FONDECYT-Research Grant by** National Fund for Scientific and Technological Development, Government of Chile, Chile; **Sep 2017-Mar 2020**
- **Sheikh Saqr Laboratory Research Fellow by** New chemistry unit, Jawaharlal Nehru Center for Advanced Scientific Research, (JNCASR), Bangalore, India **;Aug 2015- Mar 2015**
- **Research Fellowship in Sciences for Meritorious Students** Fellowship for Meritorious Research Scholar by University Grants Commission (UGC), Government of India. **; Sep 2008- Sep 2010**
- **Dayawathi Rastogi Award** For best paper presentation at International Conference on Perspectives in Vibrational Spectroscopy by Bishop Moore College, Kerala. India. ; **Mar 2013**
- **Best Presentation Award,** National Conference on analytical Spectroscopy in Chemical Research, MAMO College, Kerala, India; **Dec 2009**

Principal investigator

FONDECYT- Grant No 3170052, Fondo Nacional Desarrollo Científico y Tecnológico -FONDECYT (Mar 2017 -Mar 2020) Synthesis and band engineering of $Sn_{1-x}A_xSe$ (A=Ge, Sb) thermoelectric materials for energyapplication. Budget 81.432.000 CLP (~120000 USD)

Responsible Researcher

- **CONICYT-Grant No -ACT 1117 project** (Sep 2015-Dec 2006) Interdisciplinary Program of Nanomaterials and Molecular Systems
- **R+D+i (PIDi)** Mar 2021- Dec 2021) Materials for catalytic applications Universidad Tecnológica Metropolitana, Santiago

Book Chapter

- **Ramesh Sivasamy** and Edgar Mosquera, Handbook of energy materials Chapter tittle ¨Progress in Transition metal sulphides for oxidation reactions¨ (Under Preparation June 2022)

PUBLICATIONS (Submitted: 2, IF: 8.63)

1. **Ramesh Sivasamy**, Katherine Paredes-Gil, Franck Quero, and Selvam Kaliamoorthy, Sandwich like van der Waals hetero-structures of GaN/$MoSe_2$/GaN nanosheets: First-principle investigations of the electronic, optical and thermodynamical properties. **Submitted**: ***Materials Science in Semiconductor Processing* 2021. IF**:3.92

2. Katherine Paredes-Gil, Ramesh Sivasamy and Fernando Mendizábal, A Mechanistic DFT study of Z-Selective Ring-Opening Metathesis Polymerization (ROMP) by Mo-based-MAP catalyst, Molecular Catalysis. **IF**:4.71

PUBLICATIONS (Published 26; Corresponding*/first author 19, Second author7)

3. **Ramesh Sivasamy**, Katherine Paredes-Gil, and Franck Quero, First-principle study of the electronic and optical properties of two-dimensional $MoSe_2$/GaN van der Waals heterostructure nanosheet for photocatalytic application, ***Physica E: Low-dimensional Systems and Nanostructures*, (2021)** 114994**. IF**:3.75

4. Ramkumar Sekar and **Ramesh Sivasamy** Ultrasonic synthesis of TiO_2/Zns nanocomposite as a secondary layer to enhance the efficiency of the dye-sensitized solar cell, ***Materials Science in Semiconductor Processing*, 132 (2021) 105917. IF**: 3.92

5. **Ramesh Sivasamy,** Katherine Paredes-Gil, Frank Quero, and Khalid Mujasam Batoo, First-principles investigation of the electronic structure, optical properties of two-dimensional MoSe2/InN van der Waals heterostructure nanosheet, ***Materials Science in Semiconductor Processing,*** 131 **(2021)** 105861. **IF:**3.204

6. **Ramesh Sivasamy***, S. Marutheeswaran Rodrigo Espinoza, and Edgar Mosquera, Electronic structure and optical properties of two-dimensional hydrogenated stirrup triels nitride nanosheets: A first principle study, ***Materials science, and engineering B*****,** 264, **(2021)** 114978**. IF**: 4.706

7. **Ramesh Sivasamy***, S. Amirthaganesan, Rodrigo Espinoza, Frank Quero, and Khalid Mujasam Batoo, First-principles investigation of the electronic structure, optical and thermodynamic properties on monolayer $Sn_{0.5}Ge_{0.5}Se$ nanosheet, ***Physica E: Low-dimensional Systems and Nanostructures*****,**126 **(2021)** 114454. **IF**:3.75

8. **Ramesh Sivasamy*****,** Potu Venugopal and Rodrigo Espinoza, Crystal structure, electronic, optical and magnetic properties of Gd_2MnFeO_6 double perovskite: An experimental and first-principle investigations, ***Materials Today communication,*** 25 **(2020)** 101603. **IF**:2.678

9. **Ramesh Sivasamy***, Potu Venugopal and Edgar Mosquera, Design and synthesis of a novel CdO/Gd_2O_3 nanocomposite by facile sol-gel method: Structural, morphological, optical, electrochemical and magnetic properties, ***Vacuum,*** 175 **(2020)** 109255. **IF**:2.906

10. **Ramesh Sivasamy***, Potu Venugopal, and Rodrigo Espinoza-González, Design and synthesis of a novel $Pd/Mn(Mn_{1.36}Pd_{0.64})O_4$ nanocomposite and its structure morphology, optical, electrochemical and magnetic properties: An experimental and theoretical approach, ***Vacuum,*** 182 **(2020)** 109683. **IF:**2.906

11. Geetha Kalyan, **Ramesh Sivasamy***, Electronic structure, optical and thermodynamic studies on 2D $SnSe_2$ nanosheet: A First-principles investigation*,* ***Superlattices, and microstructures,*** 133 (2019), 106182. **IF:**2.120

12. **Ramesh Sivasamy***, Potu Venugopal, and Rodrigo Espinoza, An experimental and first-principle investigations on perovskite $Gd(Mn_{0.7}Ni_{0.3})O_3$ nanoparticles, ***Ceramic International,*** 16 **(2019)** 20022-20027. **IF**:3.83

13. Alexis Lavin, **Ramesh Sivasamy**, Edgar Mosquera, and Mauricio J Morel, High proportion ZnO/CuO nanocomposites: Synthesis, structural, and optical properties and their photocatalytic behavior, ***Surfaces and Interfaces,*** 17 **(2019)** 100367 (9). **IF**:3.724

14. Muthuchamy Maruthupandy, **Ramesh Sivasamy**, Muthusamy Anand, Growth of dendritic structured Cu_2O nanoparticles decorated bacterial flagellin protein for potential enhancement of electrochemical conductivity, ***Materials letters***, 255 **(2019)** 126554 (4). **IF**: 3.204

15. **S. Ramesh*****,** Jerald V. Ramaclus, B.B. Das, and Edgar Mosquera**,** Structural, morphological, optical, and magnetic properties of $Ag_{3(2+x)}In_xNb_{4-x}O_{11+\delta}$ $(0.25 \leq x \leq 1.0)$ nanoparticles synthesized by sol-gel method. ***Materials Research Bulletin*** 105 **(2018),** 121-125. **IF**: 4.014

16. Joseba Orive, **Ramesh Sivasamy**, Roberto Fernández Luis, Edgar Mosquera, and María I. Arriortu, $K_2Mn^{II}_2(H_2O)_2C_2O_4(HPO_3)_2$: a new 2D manganese (II) oxalatephosphite with double-layered honeycomb sheets stabilized by potassium ions, ***Crystal Engineering Communication***, 20 **(2018)** 301-311. **IF**:3.383

17. E Mosquera, D Herrera, M Quintero, **R Sivasamy**, A García, J Diosa, RA Vargas, Ultrasonic-Assisted Synthesis and Photocatalytic Activity of TiO2 Nanoparticles for Methyl Orange Degradation under Visible Light, *Preprints, **(2018)** PPR50913*

18. **S. Ramesh*****,** Potu Venugopal Edgar Mosquera, Experimental and theoretical investigation of Bixbyite $(Mn_{0.8}Ni_{0.2})_2O_3$ nanoparticles for magnetic and electrochemical applications, ***Journal of Magnetism and Magnetic Materials,*** 443 **(2017)** 45-50. **IF**: 2.727

19. **S Ramesh***, J.V Ramaclus, E Mosquera, BB Das, Sol-gel synthesis, structural, optical and magnetic characterization of $Ag_{3(2+x)}$ $Pr_xNb_{4-x}O_{11+\delta}$ ($0.0 \leq x \leq 1.0$) nanoparticles, ***RSC Advances,*** 6 **(2016)** 6336-6341.**IF**:3.119

20. Sumathi S, Viswanathan K, **Ramesh S**, Vibrational spectroscopic (FT-IR, FT-Raman and SERS) investigation and computational Study of 1,3 di-nitrobenzene, ***International Journal of Advanced Scientific and Technical Research,*** 1 **(2016)** 316-348.

21. S. Sumanta, B. Swastika, J. Rajkumar, **S. Ramesh**, S. K. Pati, M. Balasubramanian, and S. C. Peter, $Eu_3Ir_2In_{15}$: A Mixed-Valent and Vacancy- Filled Variant of the $Sc_5Co_4Si_{10}$ Structure Type with Anomalous Magnetic Properties, ***Inorganic Chemistry*** 54 **(2015)** 10855–10864. **IF**: 4.825

22. **S Ramesh***, S Marutheeswaran, J. V Ramaclus, D. C. Paul Electronic structure study on 2D hydrogenated Icosagens nitride nanosheets, ***Superlattices and microstructures**, 76 (2014) 213–220.* **IF:**2.120

23. J. V. Ramaclus, T. Thomas, S**. Ramesh**, P. Sagayaraj and E. A. Michael, Growth, linear and nonlinear optical properties of a DSSS crystal, ***Crystal Engineering Communication**,* 16 **(2014)** 6889-6895. **IF**:3.383

24. **S. Ramesh***, Sol-Gel Synthesis and Characterization of $Ag_{3(2+x)}$ $Al_xNb_{4-x}O_{11+\delta}$ ($0.0 \leq x \leq 1.0$) Nanoparticles, ***Journal of Nanoscience***, 1 **(2013)** 929321- 929328.

25. **S. Ramesh***, B.B. Das, and D. Nagaraju, Characterization of $(0.3-x)WO_3$-$0.70Sb_2O_3$-$xAgNO_3$ ($0.29 \geq X \geq 0.01$) polycrystalline system, ***Proceedings of the fourth international conference on perspectives in vibrational spectroscopy*****,** 45, (2013) 6-9.

26. **S. Ramesh***, BB Das, Sol-gel Synthesis, Structural and Characterization of Ag-Gd-Ti-O Nanocomposites, ***Asian Journal of Chemistry***, 24 **(2012)** 5543-5545.

27. **S. Ramesh***, BB Das, Synthesis, structure, and characterization of $Nd_{2x}Cd_{2-3x}SiO_4$ ($0.01 \leq x \leq 0.21$) solid-solutions, ***Journal of the Korean Chemical Society***, 55 **(2011)** 502-508. **IF**:0.611

28. **S. Ramesh** and B. B. Das, Synthesis, Structural and Magnetic Characterization of $Ag_{3(2+x)}$ $Gd_xNb_{4-x}O_{11+\delta}$ ($0.0 \leq x \leq 1.0$) Nanocomposites, ***AIP Conference Proceedings***, 1003 **(2008),** 85-87. **IF**:0.40

SELECTED CONFERENCES (11 international, 6 National; 8 oral 9 posters)

1. ***Oral*** **Presentation-** 24th Soft Magnetic Materials Conference, Poznan University of Technology, Poznan, Poland. **2019**
2. ***Oral*** **presentation**- International Conference on Physics & Chemistry of Solids (ICPCS-2019), Hindustan Institute of Technology and Science, Chennai, India **2019**
3. ***Oral*** **presentation and Session Chair**- Royal Society of Chemistry India West Chapter Symposium and Research Scholar Meet-**2019**, Surat, India.
4. ***Invited*** **speaker**- International Conference on Material Physics (ICMP-**2018**), Bishop Heber College, Tiruchirappalli, India.
5. ***Invited*** **speaker**- International Conference on Advanced Materials (ICAM- **2017**), St. Joseph's College, Tiruchirappalli, India.
6. ***Poster*** **presentation-** International Conference on Materials and Characterization Techniques (ICMCT **2014**), VIT University, Vellore, Tamilnadu, India.
7. ***Oral*** **Presentation-** International Conference on Perspectives in Vibrational Spectroscopy (ICOPVS **2013**), Bishop Moore College, Mavelikara, Kerala, India.
8. ***Poster*** **Presentation**- Interdisciplinary symposium on materials chemistry (ISMC-**2012**), BARC, Mumbai, India.
9. ***Attended***- Fifth Science Conclave: An interaction program with Nobel Laureates and Scientists, IIIT- Allahabad, Allahabad, India. **2012**

10. ***Poster* Presentation**-International conference on Global trends in pure and applied chemical sciences (ICGTCS), Udaipur, India. **2012**
11. ***Oral* Presentation**-National Conference on analytical spectroscopy, Kerala, India. **2011**
12. ***Oral* presentation-** National Conference on Recent Advances in the Study of Transition Metal Complexes, Viruthunager, India. **2011**
13. ***Poster* Presentation**- International conference on magnetic materials (ICMM), Kolkatta, India. **2007**
14. ***Poster* Presentation-** The Indian Science Congress Association, Annamalai University, India. **2007**
15. ***Poster* Presentation-** 18th Annual General Meeting and Theme Symposium on Bio, Biomedical and nature Materials" (MRSI), Delhi, India. **2006**
16. ***Poster* Presentation-** International Conference in Materials Science, BARC, Mumbai, India, **2006**
17. ***Poster* Presentation**-National Conference on Current Trends in Chemical Research (CTCR), Mangalore University, India **2006**

SCIENTIFIC REVIEWER IN INTERNATIONAL JOURNAL

● Materials chemistry and engineering B, ● Journal of Alloys and compounds, ●Materials Chemistry and Physics, ● Applied Surface Science ●Surface Review and Letters ●Journal of Materials Science: Materials in Electronics, ● ACS Omega. ● AIP Conference Proceedings

TEACHING EXPERIENCE AND COURSE TAUGHT

July 2011 – Aug 2014 and Mar 2015-Sep 2015, Assistant Professor, Saveetha University, Chennai, India

- UC004 –Engineering Chemistry-I
- EC003 – Engineering Chemistry-II
- EnEE 004-Principles of environmental science and engineering (Theory and Lab)
- SH1102- Energy and materials chemistry (Theory and Lab)
- SH5102- Applied industrial chemistry (Theory and Lab)

COLLABORATORS

- **Dr. Edgar E. Mosquera Vargas**, Professor, *Universidad de Valle, Cali,* ***Colombia.***
- **Dr. Katherine Paredes Gil**, Professora, Universidad Tecnológica Metropolitana, Santiago - **Chile**
- **Dr. Rodrigo Espinoza**, Professor, *Universidad de Chile, Santiago,* ***Chile.***
- **Dr. Frank Quero**, Professor, *Universidad de Chile, Santiago,* ***Chile.***
- **Dr. Mauricio J. Morel**, Profesor, *Universidad de Atacama, Copiapó,* ***Chile.***
- **Dr. Khalid Mujasam Batoo**, Professor, *King Saud University,* ***Saudi Arabia.***
- **Dr. Selvam Kaliyamoorthy,** *Nagoya University,* ***Japan.***
- **Dr. Dundappa Mumbaradi,** *University of Alberta,* ***Canada.***
- **Mr. Potu Venugopal**, Researcher, *Pondicherry University,* ***India.***
- **Dr. Jerald Vijay Ramaclus**, Professor, *St. Joseph College, Tiruchirappalli,* ***India.***
- **Dr. S. Amirthaganesan**, Professor, *Saveetha University, Chennai,* ***India.***