

CURRICULUM VITAE

RAJATHSING K

Ph.D. Research Scholar
Inorganic Materials and Catalysis Division
CSIR - Central Salt & Chemicals Research Institute
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Career Objectives

To seek an appropriate position in an organization that taps my skills and gives me to show my potentials as a material chemist and polymer composites. It also offers intellectual growth while being innovative, resourceful, and flexible for working in an organizational set up that is research-oriented to meet the future technological challenges.

Area of Research @ CSIR-CSMCRI (Doctoral Research)

Development of a layered double hydroxide based materials, polymer composites, and LDH-polymeric nanocomposite materials.

- ✓ Environmental remediation
- ✓ Flame retardant
- ✓ Oil/water purification
- ✓ UV shielding agents, Plasticizers

Doctoral Thesis

Doctoral thesis entitled “**Layered Double Hydroxide-Polymer Nanocomposite: Multifunctional Materials for Diverse Applications**” from Academy of Scientific & Innovative Research (AcSIR), New Delhi, India. Submitted thesis on June 01, 2020.

Academic Project Work

Academic project entitled “**Synthesis and pharmacological evaluation of 2-(aryloxymethyl)thiirane and its analogs**” was carried out at Sri Paramakalyani College, Affiliated with Manonmaniam Sundaranar University, Tirunelveli, Tamilnadu, India (During M.Sc.,)

Academic Profile

Course	Institution/University	Period	%Marks
Ph.D., Chemical Science	Academy of Scientific & Innovative Research, CSIR-Central Salt and Marine Chemicals Research Institute, Bhavnagar, Gujarat, India.	2013 – 2020	8.3 CGPA

M.Sc., Chemistry	Sri Paramakalyani College, Affiliated with Manonmaniam Sundaranar University, Tirunelveli, Tamilnadu, India.	2007 – 2009	62.6
B.Sc., Chemistry	Rajapalayam Rajus' College, Affiliated with Madurai Kamaraj University, Madurai, Tamilnadu, India.	2004 – 2007	66.5
HSS	P.A.C.M Chinnraja Higher Secondary School, Rajapalayam, Tamilnadu Education Board, Tamilnadu, India.	2002 – 2004	71.4
SSLC	P.A.C.M Chinnraja Higher Secondary School, Rajapalayam, Tamilnadu Education Board, Tamilnadu, India.	2001 – 2002	83.0

Research Experience

- Joined as Ph.D. Research Student under Academy of Scientific & Innovative Research (AcSIR), CSIR-Central Salt and Marine Chemicals Research Institute (CSIR-CSMCRI), Bhavnagar, Gujarat, India, **January 2015 to till date.**
- Worked as Project Fellow on “**Specialty materials based on Engineered clays**” and “**Intelligent Coatings**” and “**Waste to Wealth to Plastics**” at CSIR - Central Salt and Marine Chemicals Research Institute (CSIR - CSMCRI), Bhavnagar, Gujarat, India, from **August 2013 to till date.**
- Worked as M.Sc Dissertation on “**Synthesis and pharmacological evaluation of 2-(aryloxymethyl)thiirane and its analogs**” at Sri Paramakalyani College, Affiliated with Manonmaniam Sundaranar University, Tirunelveli, Tamilnadu, India. from **December 2008 to May 2009.**

Technical Experience

- ❖ Personally handled Powder X-ray diffraction, Infrared spectroscopy, Ultra-Visible spectroscopy, Fluorescence spectroscopy, Karl Fisher titration, Auto-titration, Zeta potential, Particle size analyzer, Universal testing machine, Bursting test, Polarimeter, Total Organic Carbon Analyzer, pH Meter, Conductivity, Nephelometer, Refractive index, Spin coating, Disintegration, Friabilator, Tap Density & Bulk Density, Chromatography Techniques.
- ❖ Experienced in the interpretation of analytical data of PXRD, FTIR, FT-Raman, UV, TGA, DSC, DMA, UTM, WCA, TOC, CHNS, AFM, FE-SEM, TEM, NMR, Limiting oxygen index and Cone Calorimeter.
- ❖ Experienced in advanced chemical structure drawing tools and software; Chem-Draw-14.0, ISIS-Draw-2.5, Symyx-Draw-3.1, Marvin-Sketch-5.7, and other skills; SciFinder, Origin-2017, MestReNova, Endnote-9.0, Account Pro – Tally 7.2, Microsoft Office & Windows.

Working Experience

- ❖ Quality Engineer in Ramco Industries Limited, Maksi – 465 106, Madhya Pradesh in *Quality Control Division - Quality Engineer*, September **2012** to July **2013**.
- ❖ Junior Executive at SPi Global Technologies, Guindy, Chennai - 600 032, Tamilnadu in *Abstract and*

Indexing - Chemical Division - Junior Excerptors Chemist, February **2012** to September **2012**.

- ❖ Junior Chemist in Apex Laboratories Private Limited, Alathur, Chennai – 603 110, Tamilnadu in *Quality Control Division – Junior Executive Chemist*, March **2010** to January **2011**.
- ❖ Chemist in Scope e-Knowledge Center, Nandanam, Chennai - 600 035, Tamilnadu in *Abstract and Indexing & Reaction Study - Chemical Division - Junior Excerptors Chemist*, August **2009** to March **2010**.

Vocational Training

- ❖ Government of India Ministry of Labour & Employment Directorate General of Employment & Training on “*Gas Chromatographic Methods of Separation*”, “*Spectrophotometric Methods of Analysis*”, and “*Water Analysis*”, Department of Industrial Chemistry, Advanced Training Institute, Chennai – 600 032, Tamilnadu, September 19 to October 14, **2011**.
- ❖ Shree Ramkrishna Institute of Computer Education & Applied Sciences, on “*Patent Searching for Beginners*” IP Moment and Department of Environmental Science and Department of Biotechnology, Surat - 395 001, Gujarat, June **2020**.

Patent/Publications

- ❖ Kannan Srinivasan, **Rajathsing Kalusulingam**, Sampath Gajula, Koilraj Paulmanickam and Shanthana Lakshmi Duraikkannu “*Process for the preparation of UV shielding composite thin films from bio-derived furanic material*” (CSIR Reference Number **280NF2016**; **Indian Patent** Filing Number, **201811003807** dated 1st February **2018**; **PCT/IN2019/050069** dated 30th January **2019**; and **WO2019150386A1** dated 8th August **2019**).
- ❖ Koilraj Paulmanickam, **Rajathsing Kalusulingam**, and Keiko Sasaki* “*Arginine and lysine-functionalized layered double hydroxides as efficient sorbents for radioactive Co²⁺ removal by chelate-facilitated immobilization*” (Chemical Engineering Journal., **2019**, 374, 359–369).
- ❖ **Rajathsing Kalusulingam**, Koilraj Paulmanickam, Uma Dwivedi, Jigisha Parisha, and Kannan Srinivasan* “*Preparation of layered double hydroxide/polymer nanocomposites via in-situ polymerization and their utilization for nickel uptake*” (Under Review in Materials Chemistry Physics).
- ❖ **Rajathsing Kalusulingam**, Koilraj Paulmanickam, Shanthana Lakshmi Duraikkannu, De-Yi Wang, and Kannan Srinivasan* “*Flame retardant efficiency of metal oxyanions in the interlayer gallery of MgAl-LDH polymer composites*” (Under Review in Fire and Materials).
- ❖ **Rajathsing Kalusulingam**, and Kannan Srinivasan* “*Oil/water separation of superhydrophobic silane functionalized NiFe-LDH nanosheets on various support*” (Under Review in Materials Research Bulletin).
- ❖ **Rajathsing Kalusulingam**, Sampath Gajula, Koilraj Paulmanickam, Shanthana Lakshmi Duraikkannu, and Kannan Srinivasan* “*Application of bio-derived furanic polymers as an efficient UV shielding agent in composites films*” (Under Review in ACS Sustainable Chemistry and Engineering).
- ❖ Koilraj Paulmanickam, **Rajathsing Kalusulingam**, Keiko Sasaki, and Kannan Srinivasan* “*A facile alkali-free synthesis of CoAl-CO₃²⁻/NO³⁻ and Cl layered double hydroxides: A synergy between temperature and amino acid concentration on the control of charge balancing anion*” (Under Review in Journal of Material Chemistry A).

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- ❖ Koilraj Paulmanickam, **Rajathsing Kalusulingam**, and Kannan Srinivasan* “*Alkali-free single-step synthesis of delaminated layered double hydroxide in water by amino acid assisted hydrothermal method*” (Under Review in Chemical Communications).
 - ❖ Sampath Gajula, **Rajathsing Kalusulingam**, and Kannan Srinivasan* “*Processing of soluble humin-like furanic polymers derived from biomass sugars*” (Under Review in ACS Industrial Engineering Chemistry Research).
 - ❖ Sreedhar Gundekari, **Rajathsing Kalusulingam**, and Kannan Srinivasan* “*Solid acid-catalyzed preparation of levulinic acid based renewable plasticizer*” (Under Review in Green Chemistry).

Presentations in International/National Conferences

- ❖ *Composite film of 4,4-bis(5-methyl-thiophen-2-yl)pentanoic acid, a biomass-derived plasticizer, and PVA with improved physicochemical & biological properties* by **Rajathsing Kalusulingam**, Sreedhar Gundekari, Tejal Gajaria, and Kannan Srinivasan, presented at “*National Seminar on Catalysis for Fine Chemicals*” (NSCFC-2019), Inorganic Material and Catalysis Division, CSIR-Central Salt and Marine Chemicals Research Institute, Bhavnagar - 364 002, Gujarat, India, July 25, **2019. (Received: Best Poster Award)**
- ❖ *Humin furanic polymers as UV-shielding material in the transparent thin-film composite* by **Rajathsing Kalusulingam**, Sampath Gajula, Paulmanickam Koilraj, Duraikkannu Shanthana Lakshmi, and Kannan Srinivasan, presented at “*2nd International Conference on "Energy, Functional Materials And Nanotechnology & Sustainable Environment Management" (ICEFN & SEM 2019)*”, Nanoscience and Nanotechnology Centre, Department of Chemistry, Kumaun University, Nainital – 263 001, Uttarakhand, India, May 24 – 26, **2019.**
- ❖ *Influence of oxyanion on the flame retardant behavior of MgAl-LDH/PP composites* by **Rajathsing Kalusulingam**, Paulmanickam Koilraj, Duraikkannu Shanthana Lakshmi, De-Yi Wang, and Kannan Srinivasan, presented at “*National Research Scholar Meet on Condensed Matter Physics and Materials Science*” (CMPMS-18), Department of Physics, University School of Sciences, Gujarat University, Ahmedabad, Gujarat, India, December 8, **2018. (Received: Best Poster Award)**
- ❖ *Silane functionalized NiFe-LDH@NF using for oil-water separation* by **Rajathsing Kalusulingam** and Kannan Srinivasan, presented at “*XXXII Gujarat Science Congress – 2018*”, CSIR – Central Salt and Marine Chemicals Research Institute, Bhavnagar, Gujarat, India, February 4 - 5, **2018.**
- ❖ *Pervaporation performance of exfoliated MgAl-LDHs/PVA composite* by **Rajathsing Kalusulingam**, Sanjay G Chaudhri, Puyam Sobhindro Singh and Kannan Srinivasan, presented at “*Recent Trends on Membranes and Separation Technologies 2017*”, Reverse Osmosis Division and Electro-Membrane Processes Division, CSIR – Central Salt and Marine Chemicals Research Institute, Bhavnagar, Gujarat, India, November 22 - 23, **2017.**
- ❖ *Preparation of layered double hydroxide/polymer nanocomposites and their utilization for nickel uptake*, **Rajathsing Kalusulingam**, and Kannan Srinivasan, presented at International Conference on Materials Science & Technology, Delhi University, Delhi, India, March 1 – 4, **2016.**
- ❖ *Synthesis and pharmacological evaluation of 2-(aryloxymethyl)thiirane and its analogs* by Jeyachandran Malaichamy, **Rajathsing Kalusulingam**, and P. Ramesh. “*International Conference on Coordination & Organometallic Chemistry*”, Department of Chemistry, Bharathiyar University, Coimbatore, India, March 19 - 20, **2009.**

- ❖ *Synthesis and antimicrobial evaluation of S-2-hydroxy-3-(coumarin-7-yloxy) propyl alkene thioate* by Jeyachandran Malaichamy, S. Kanagambigai, **Rajathsing Kalusulingam**, and P. Ramesh. “*National Seminar on Recent Trends in Chemistry*”, PG Department of Chemistry, Jayaraj Annapackiam College for Women, Periyakulam, Tamilnadu, India, February 26 - 27, **2009**.
- ❖ *Synthesis and biological evaluation of ethyl 3-(coumarin-3-yl)-2-(1H-tetrazole-5-yl)-but-2-enoate* by M. Jeyachandran Malaichamy, E. Ananthalakshmi, **Rajathsing Kalusulingam**, and P. Ramesh. “*National Seminar on Recent Trends in Chemistry*”, PG Department of Chemistry, Jayaraj Annapackiam College for Women, Periyakulam, Tamilnadu, India, February 26 - 27, **2009**.

Awards

- ✓ Received best poster award in a poster presentation during National Seminar on “*Catalysis for Fine Chemicals*” (**NSCFC-2019**), Inorganic Material and Catalysis Division, CSIR-Central Salt and Marine Chemicals Research Institute, Bhavnagar - 364 002, Gujarat, India, July 25, **2019**.
- ✓ Received best poster award in a poster presentation during National Research Scholar Meet on “*Condensed Matter Physics and Materials Science*” (**CMPMS-18**), Department of Physics, University School of Sciences, Gujarat University, Ahmedabad, Gujarat, India, December 8, **2018**.

Extra-Curricular Activities

- ❖ Volunteered for DST & ACS Workshop Master the publishing process (**2019**), National Seminar on Catalysis for Fine Chemicals (**NSCFC – 2019**), National Seminar on Organic Transformations & Catalysis (**NSOTC – 2018**), and XXXII Gujarat Science Congress – **2018** in Finance/Registration committee, CSIR – Central Salt and Marine Chemicals Research Institute, Bhavnagar Gujarat, India
- ❖ Conducted Blood Donation Camp in CSIR - CSMCRI, Bhavnagar with association with Bhavnagar blood bank. A total of more than 200 units were collected in the CSIR – Central Salt and Marine Chemicals Research Institute, Bhavnagar, Gujarat, India, May 19, **2018**
- ❖ Served as a member of NSS, Rajapalayam Rajus’ College, Madurai Kamaraj University, Madurai, Tamil Nadu, India, **2004 - 2007**.
- ❖ Participated in Marathon Running and Cycling in Bhavnagar, Gujarat, India.
- ❖ Volunteered for Blood Donation

Personal Profile

Father’s Name	Kalusulingam G
Mother’s Name	Manimeagalai D
Date of Birth	03 - 06 – 1985
Gender & Marital Status	Male & Single
Nationality	Indian
Language known	Tamil, English, and Hindi
Permanent Address	#536A, South Vaithiya Natha Puram Street

Rajapalayam – 626 117
Virudhunagar District
Tamilnadu, India

Reference

Prof. Dr. Kannan Srinivasan (Ph.D., Supervisor)

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Dr. Arvind Kumar

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Analytical and Environmental Science Division and
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Dr. Puyam Sobhindro Singh

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Bhavnagar – 364 002, Gujarat, India.

Contact: puyam@csmcri.res.in

Declaration

I hereby declare that the above particulars are true and correct to the best of my knowledge and belief.

Place: Bhavnagar

Yours Sincerely

Date:

Rajathsing K
