

## CURRICULUM VITAE

Dr. MOHANRAJ KRISHNAN, Ph.D.

Dept. of Chemistry,

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### SUMMARY:

I am an enthusiastic researcher with about ten years of research experience in physical chemistry and polymer science, aiming at oil & gas, environmental, energy, water separation, and purification applications. I primarily focus on enhanced oil recovery (EOR), water shutoff treatments (WS), loss circulation materials (LCMs), permeability modifiers (PMs), and high-strength and lightweight proppants for hydraulic fracturing operations. My expertise includes oil-water separation, produced water, and industrial effluent treatment.

### RESEARCH BACKGROUND:

- Enhanced Oil Recovery (EOR) and Water Shutoff Treatments
  - (a) Polyacrylamide-2D nanosheets-based composites
  - (b) Lost Circulation Materials (LCM)
  - (c) Relative permeability Materials (RPM)
  - (d) Polyacrylamide-Sand based composites
- High-strength and Light-Weight Proppants for Hydraulic Fracture Operations
  - (a) Polymer composites dual-coated sand proppants
  - (b) 3D-polymer networks dual-coated sand proppants
  - (c) Nano sand-based lightweight proppants
- Produced Water (Oil-Field Generated) Treatment
  - (a) Development of polymer-based Absorbents/Adsorbents for produced water purification and separation
  - (b) Oil/water separation
  - (c) Energy and cost-effective nanomaterials for water treatment applications
  - (d) Industrial effluent treatment
- Development of Functional Nanomaterials for Energy
  - (a) Nanoporous thin films for optical & optoelectronic applications
  - (b) Templated syntheses of nanoporous materials
  - (c) Functional nanomaterials derived from block copolymer self-assemblies
  - (d) Functional nanomaterials for catalytic applications
- Nanomaterials for Environmental and Desert Agriculture
  - (a) Polyacrylamide and its composites-based superabsorbents
  - (b) Nanomaterials for sustained desert agriculture
- Bone Cement and Anti-Microbial Nanocomposites
  - (a) Polystyrene-Polymethylmethacrylate based Bone cement and Scaffolds
  - (b) Graphene-Metal Nanocomposites based Anti-viral and anti-microbial materials

## EMPLOYMENT

- 12/2018 – Current: Faculty Member,  
Department of Chemistry, College of Science  
Alfaisal University, Riyadh, Saudi Arabia
- 04/2015 – 01/2018: Postdoctoral Research Associate,  
Dept. of Chemical Engineering, National Tsing Hua University,  
Hsinchu, Taiwan, R.O.C.
- 07/2009 – 03/2010: Research Associate, Water Research Division, Unilever  
Research and Development, Unilever Research India, Bangalore, India.

## EDUCATION

- 04/2010 – 03/2015: Doctor of Philosophy (Ph.D.)  
Dept. of Chemistry and Biochemistry,  
College of Engineering  
Kyushu University, Japan.  
Grade: A  
Advisor: Professor Dr. Izumi Ichinose.
- 07/2007 – 04/2009: Master of Science (M.Sc.) Dept. of Chemistry, Anna  
University, Chennai, India.  
CGPA: 8.62/10 (First Class with Distinction)  
Advisor: Professor P. Selvam (IIT Madras).
- 20/2004 – 04/2007: Bachelor of Science (B.Sc.) Dept. of Chemistry, Madras  
University, Chennai, India.  
CGPA: 8.35/10 (First Class)  
Advisor: Professor V. Rajendran.

## FELLOWSHIPS:

- 04/2010 – 03/2015: Junior Researcher, National Institute for Materials Science  
(NIMS), Tsukuba, Japan.  
Host: Professor Dr. Izumi Ichinose.
- 04/2008 – 04/2009: Project Researcher, Indian Institute of Technology Madras  
(IIT Madras), Chennai, India.  
Host: Professor P. Selvam.
- 05/2008 – 07/2008: Summer Research Fellow, Jawaharlal Nehru Institute for  
Advanced Scientific Research (JNCASR), Bangalore, India.  
Host: Professor C.N.R. Rao.
- 03/2009: GATE Fellowship (Chemistry)

## AWARDS AND HONORS:

05/2024: Patent Award by Alfaisal University

## PUBLICATIONS: PEER-REVIEWED JOURNALS

Citation Analysis	Profile ID	Number of Indexed Documents	Total Number of Citations	H-Index
Google Scholar	Mohan Krishnan	35	859	17
ScholarGPS	76257024360820	35	675	15
Scopus	55907333000	32	460	13
Web of Science	N-8959-2015	28	403	11

  

1. Mohan Raj Krishnan, Haneen Omar, and Edreese Alsharaeh, Preparation and Properties Investigation of Polymethylmethacrylate-Reduced Graphene Oxide-Silver Nanocomposites by Laser-Assisted In-Situ Free Radical Polymerization Method. *J. Appl. Poly. Sci.*, 2024 (Under Review).
2. Haneen Omar, Mohan Raj Krishnan, and Edreese Alsharaeh, Methodological Impact on Structural and Chemical Characteristics of Copper-Reduced Graphene Oxide-Poly(Styrene-co-Methylmethacrylate) Nanocomposites Prepared using Microwave Irradiation and Bulk Polymerization Techniques. *J. Appl. Poly. Sci.*, 2024 (Under Review).
3. Chandra Sekhar Bongu, Mohan Raj Krishnan, Sehar Taslim, and Edreese Alsharaeh, Plant Seeds Derived Activated Carbon for Hydrogen Storage Applications - A Critical Review. *Sustainable Energy & Fuels*, 2024 (Under Review).
4. Muhammad Aizaz Ud Din, Mohan Raj Krishnan, and Edreese Alsharaeh Design Strategies for Cost-Effective High-Performance Electrocatalysts in Sea Water Electrolysis to Produce Hydrogen. *Renewable and Sustainable Energy Reviews*, 2024 (Under Review).
5. Mohan Raj Krishnan, Wengang Li, Bader Alharbi, and Edreese Alsharaeh, In-Situ High-Strength Ploy(styrene-co-methylmethacrylate)-2D-Nanofiller Composite Microbeads as Potential Proppants for Hydraulic Fracturing. *Geoenergy Science and Engineering*, 2024 (Revised).
6. Mohan Raj Krishnan, Wengang Li, Bader Alharbi, and Edreese Alsharaeh, Recent Developments on In-Situ Generated Proppants-Critical Review. *Geoenergy Science and Engineering*, 2024, 242, 213227, <https://doi.org/10.1016/j.geoen.2024.213227>.
7. Chandra Sekhar Bongu, Sehar Taslim, Mohan Raj Krishnan, and Edreese Alsharaeh, Graphene-Based 2D Materials for Rechargeable Batteries, Hydrogen Production and Storage-Critical Review. *Sustainable Energy & Fuels*, 2024, <http://doi.org/10.1039/D4SE00497C>.
8. Mohan Raj Krishnan, and Edreese Alsharaeh, Shallow Penetration Conformance Sealants (SPCS) Based on Organically Crosslinked Polymer and Particle Gels – An Overview. *J. Polym. Sci. Eng.*, 2024, 7(2), 6671, <https://doi.org/10.24294/jpse.v7i2.6771>.
9. Mohan Raj Krishnan, and Edreese Alsharaeh, Hydrophilically Modified Mesoporous Polymer for Rapid Removal of Polycyclic Aromatic Hydrocarbons from Water. *J. Environmental Nanotech. Monitoring Management*, 2024, 100986. <https://doi.org/10.1016/j.enmm.2024.100986>.
10. Feven Matthews Michael, Mohan Raj Krishnan\* and Edreese Alsharaeh, Fabrication of Polymer-Based Bone Scaffolds-Conventional vs. Advanced Methods, *J. Polym. Sci. Eng.*, 2024, 7(1), 6518, <https://doi.org/10.24294/jpse.v7i1.6518>.
11. Mohan Raj Krishnan, and Edreese Alsharaeh Poly(styrene-co-methyl methacrylate)-Silver/Reduced Graphene Oxide-nano Hydroxyapatite Nanocomposites for Bone Cement Applications. *Int. J. of Polym. Mat. and Polym. Biomat.*, 2024, 1-12. <http://doi.org/10.1080/00914037.2024.2372791>.

12. Sehar Taslim, Chandra Sekhar Bongu, Mohan Raj Krishnan, and Edreese Alsharaeh, Navigating the Hydrogen Prospect: A Comprehensive Review of Sustainable Source-Based Production Technologies, Transport Solutions, Advanced Storage Mechanisms, and CCUS Integration. *J. of Energy Chemistry*, 2024, 97, 166, <https://doi.org/10.1016/j.jechem.2024.05.022>.
13. Mohan Raj Krishnan\* and Edreese Alsharaeh, Mechanical Strength Investigation of Chemically Reinforced Sandy Soil using Organic Copolymers for Geotechnical Engineering Applications, *J. Polym. Sci. Eng.*, 2024, 7(1) 5170. <https://doi.org/10.24294/jpse.v7i1.5170>.
14. Mohan Raj Krishnan, and Edreese Alsharaeh, Fabrication of Thermo-Mechanically Reinforced Polystyrene-Graphene Nanocomposite Aerogel for Produced Water Treatment. *J. Porous Materials*, 2024,31, 1363-1373. <https://doi.org/10.1007/s10934-024-01602-y>.
15. Mohan Raj Krishnan, Ayman Almohsin, and Edreese Alsharaeh, A Comprehensive Review on Nanostructured Silica Polymer Composites as High-Performance Functional Materials in oil fields. *Polymer Bulletin*, 2024, 81, 3883, <https://doi.org/10.1007/s00289-023-04934-y>.
16. Mohan Raj Krishnan, Ayman Almohsin, and Edreese Alsharaeh, Mechanically Robust and Thermally Enhanced Sand-Polyacrylamide-2D Nanofiller Composite Hydrogels for Water Shutoff Applications, *J. Appl. Poly. Sci.*, 2024, 141 (7), e54953. <https://doi.org/10.1002/app.20232003>.
17. Mohan Raj Krishnan\* and Rajendran Venugopal, Sulfonated Mesoporous Polystyrene-1D Multiwall Carbon Nanotube Nanocomposite as Potential Adsorbent for Efficient Removal of Xylene Isomers from Aqueous Solution Charact. Appl. Nanomater., 2023, 6(2), 1951, <https://doi.org/10.24294/can.v6i2.3314>.
18. Mohan Raj Krishnan\* and Edreese Alsharaeh, High-Performance Functional Materials Based on Polymer Nanocomposites -A Review, *J. Polym. Sci. Eng.*, 2023 6(1) 3292. <https://doi.org/10.24294/jpse.v6i1.3292>.
19. Mohan Raj Krishnan\*, Wengang Li, and Edreese Alsharaeh, Cross-linked Polymer Nanocomposite Networks Coated Nanosand Light-Weight Proppants for Hydraulic Fracturing Applications. Charact. Appl. Nanomater., 2023, 6(2), 1-12. <https://doi.org/10.24294/can.v6i2.3314>.
20. Mohan Raj Krishnan\*, and Edreese Alsharaeh, Polymer Gel Amended Sandy Soil with Enhanced Water Storage and Extended Release Capabilities for Sustainable Desert Agriculture. *J. Polym. Sci. Eng.*, 2023, 6 (1), 1-9, <https://doi.org/10.24294/jpse.v6i1.2892>.
21. Chandrasekar Bongu, Mohan Raj Krishnan, and Edreese Alsharaeh, Flexible and Freestanding MoS<sub>2</sub>/Graphene Composite for High-Performance Supercapacitors. *ACS Omega*, 2023, 8, 36789, <https://doi.org/10.1021/acsomega.3c03370>.
22. Mohan Raj Krishnan, and Edreese Alsharaeh, Nanoporous Copolymer Nanocomposites for Potentially Toxic BTX Vapor Adsorption Applications. *J. Environmental Nanotech. Monitoring Management*, 2023, 20, 100860, <https://doi.org/10.1016/j.enmm.2023.100860>.
23. Mohan Raj Krishnan, Rajendran Venugopal, and Edreese Alsharaeh, Anti-reflective and high-transmittance optical films based on nanoporous silicon dioxide fabricated from templated synthesis. *J. Non-Crystalline Solids*, 2023, 606, 122198. <https://doi.org/10.1016/j.jnoncrysol.2023.122198>.
24. Mohan Raj Krishnan, Yazeed Fahad Aldawsari, Wengang Li, and Edreese Alsharaeh, Fabrication Ultra-High Strength Micro Sand Proppants through Polymer and Epoxy Nanocomposites Dual-Coating. *Heliyon*, 2022, 8, e12282. <https://doi.org/10.1016/j.heliyon.2022.e12282>.
25. Mohan Raj Krishnan, Ayman Almohsin, and Edreese Alsharaeh, Syntheses of mesoporous styrene-co-methyl methacrylate-graphene composite for oil removal, *Diamond and Related Materials*. 2022, 109494. <https://doi.org/10.1016/j.diamond.2022.109494>.
26. Mohan Raj Krishnan, Yazeed Fahad Aldawsari, and Edreese Alsharaeh, 3D-Poly(styrene-methyl methacrylate)/divinyl benzene Composites with 2D-Boron Nitride and Graphene Nanosheets as Potential Absorbents for Crude Oil and Organic Solvents. *Polymer Bulletin*, 2022, 11, 1. <https://doi.org/10.1007/s00289-021-03565-5>.

27. Mohan Raj Krishnan, Yazeed Fahad Aldawsari, Feven Mattews Michael, Wengang Li, and Edreese Alsharaeh, 3D- Polystyrene-Polymethyl methacrylate/Divinyl benzene Networks Epoxy-Graphene Dual-Coated Sand as High Strength Proppants for Hydraulic Fracture Operations. *J. Nat. Gas. Sci. and Engg.* 2021, 88, 103790. <https://doi.org/10.1016/j.jngse.2020.103790>.
28. Mohan Raj Krishnan, Feven Mattews Michael, Yazeed Fahad Aldawsari, and Edreese Alsharaeh, Cross-linked Polystyrene-Polymethyl methacrylate/Divinyl benzene as Efficient Absorbents for Organic Solvents and Crude Oil. *J. Appl. Poly. Sci.*, 2021, 138, 49942. <https://doi.org/10.1002/app.49942>.
29. Mohan Raj Krishnan, Feven Mattews Michael, Yazeed Fahad Aldawsari, Wengang Li and Edreese Alsharaeh, Mechanically Reinforced Polystyrene-Polymethyl methacrylate-graphene epoxy graphene Composites Dual Coated Sand Proppants for Hydraulic Fracture Operations *J. Petrol. Sci. Engg.*, 2021, 196, 107744. <https://doi.org/10.1016/j.petrol.2020.107744>.
30. Yu-Cheng, Chien; Liang Yu, Huang; Kai Chieh, Yang, Mohan Raj Krishnan; Wei Song, Hung; Jing Cherng, Tsai; Rong-Ming Ho; Fabrication of Metallic Nano network via Templated Electroless Plating as Hydrogenation Catalyst. *Emergent Materials*, 2021, 4, 493-501. <https://doi.org/10.1007/s42247-020-00108-y>.
31. Mohan Raj Krishnan, Feven Mattews Michael, Yazeed Fahad Aldawsari, Wengang Li and Edreese Alsharaeh, A review on Polymer Composites with 2D-nanofillers in Developing Coated Sand Proppants for Hydraulic Fracture Operations *J. Nat. Gas Sci. Engg.*, 2020, 83, 103553. <https://doi.org/10.1016/j.jngse.2020.103553>.
32. Feven Mattews Michael, Mohan Raj Krishnan, Shahla Shukri Mohammed Alsoughayer, Ahmad Busaleh, Ayman Almohsin, and Edreese Alsharaeh, Thermo-Elastic and Self-Healing Polyacrylamide -2D Polymer Composite Hydrogels for Water Shutoff Treatment. *J. Petrol. Sci. Engg.*, 2020, 193, 107391. <https://doi.org/10.1016/j.petrol.2020.107391>.
33. Mohammad Aldosari, Mohan Raj Krishnan, Feven Mattews Michael, Edreese Alsharaeh, Microwave Irradiation Synthesis and Characterization of R-(Graphene Oxide-Polystyrene-Polymethylmethacrylate/Silver Nanoparticles) Nanocomposites and Their Anti-Microbial Activities. *Polymers*, 2020, 12, 1155. <https://doi.org/10.3390/polym12051155>.
34. Feven Mattews Michael, Mohan Raj Krishnan, Arshia Fathima; Ahmad Busaleh, Ayman Almohsin, and Edreese Alsharaeh, Zirconia/Graphene Nanocomposites. Effect on the Enhancement of Thermo-Mechanical Stability of Polymer Hydrogels. *Materials Today Comm.*, 2019, 21, 100701. <https://doi.org/10.1016/j.mtcomm.2019.100701>.
35. Chung-Fu Cheng; Yu-Ming Chen; Feng Zou; Kewei Liu; Yanfeng Xia; Yi-Fan Huang; Wei-Yao Tung; Mohan Raj Krishnan; Bryan D. Vogt; Chien-Lung Wang; Rong-Ming Ho; Yu Zhu, High-Power Li-Ion Capacitor with Nanonetwork-Structured Ni/NiO/C Anode and Nitrogen-Doped Carbonized Metal-Organic Framework Cathode. *ACS Appl. Mater. Interfaces*, 2019, 11, 30694-30702. <https://doi.org/10.1021/acsami.9b06354>.
36. Mohan Raj Krishnan, Wen-Yu Chiu, I-Chen Chen, Jheng-Wei Lin, Kai-Yuan Lu Ting-Ya Lo, Prokopios Georgopoulos, Apostolos Avgeropoulos, Ming-Chang Lee, and Rong-Ming Ho, Directed Self-Assembly of Star-Block Copolymers by Topographic Nanopatterns through Nucleation and Growth Mechanism. *Small*, 2018, 14, 1704005. <https://doi.org/10.1002/smll.201704005>.
37. Ting-Ya Lo, Mohan Raj Krishnan, Kai-Yuan Lu, and Rong-Ming Ho, Si Containing Block Copolymers for Lithographic Applications, *Prog. Poly. Sci.* 2018, 77, 19. <https://doi.org/10.1016/j.progpolymsci.2017.10.002>.
38. Mohan Raj Krishnan, Yu-Cheng Chien, Chung-Fu Cheng, and Rong-Ming Ho, Fabrication of Mesoporous Polystyrene Films with Controlled Porosity and Pore Size by Solvent Annealing for Templated Syntheses. *Langmuir* 2017, 33, 8428-8435. <https://doi.org/10.1021/acs.langmuir.7b02195>.

39. Mohan Raj Krishnan, Sadaki Samitsu, Yoshihisa Fujii, and Izumi Ichinose, Hydrophilic Polymer Nanofibre Networks for Rapid Removal of Aromatic Compounds from Water, *Chem. Commun.* 2014, 50, 9393-9396. <https://doi.org/10.1039/C4CC01786B>.
40. Sadaki Samitsu, Rui Zhang, Xinsheng Peng, Mohan Raj Krishnan, Yoshihisa Fujii, and Izumi Ichinose, Flash Freezing Route to Mesoporous Nanofibre Networks, *Nat. Commun.* 2013,4, 2653. <https://doi.org/10.1038/ncomms3653>.

## PATENTS and PATENT APPLICATIONS

1. Wengang Li, Edreese Alsharaeh, Mohan Raj Krishnan, Coated Proppants and Method of Making and Use Thereof. US Patent App. US11912938B2, 2024. (Granted on 2024-02-27)
2. Wengang Li, Edreese Alsharaeh, Mohan Raj Krishnan, Proppant Coatings and Method of Making US Patent, US11851614B2, 2023. (Granted on 2023-12-26)
3. Ayman Almohsin, Edreese Alsharaeh, Mohan Raj Krishnan, Polymer-Nanofiller Hydrogels, US Patent App. US11802232B2, 2023. (Granted on 2023-10-31)
4. Ayman Almohsin, Edreese Alsharaeh, Mohan Raj Krishnan, Polymer-Sand Nanocomposite Lost Circulation Material, US Patent, US11578543B2, 2023. (Granted on 2023-02-14).
5. Ayman Almohsin, Edreese Alsharaeh, Mohan Raj Krishnan, Coated Nanosand as Relative Permeability Modifier, US Patent, US11499092B2, 2022. (Granted on 2022-11-15)
6. Wengang Li, Edreese Alsharaeh, Mohan Raj Krishnan, Methods for Making Proppant Coatings US Patent, US11459503B2, 2022. (Granted on 2022-10-04)
7. Rong-Ming Ho, Mohan Raj Krishnan, Yu-Cheng Chien, and Suhail K. Siddique. Method for Fabricating Nanoporous Polymer Thin Film and Method for Fabricating Nanoporous Thin Film. US Patent, US11059205B2, 2021. (Granted on 2021-07-13)
8. Edreese Alsharaeh, Mohan Raj Krishnan, Method of Making Multilayer Soil with Property for Extended-Release Water for Desert Agriculture. US Patent, US10772265B1, 2020. (Granted on 2020-09-15)

## CONFERENCES: (PROCEEDINGS; ORAL; AND POSTER)

1. Ayman Almohsin, Mohan Raj Krishnan, and Edreese Alsharaeh, Sand-Polyacrylamide Hydrogels with Engineered Interfaces for Water Shut-Off Treatments, Paper presented at the *Middle East Oil, Gas and Geosciences Show*, Manama, Bahrain, February 2023. SPE-213481-MS, <https://doi.org/10.2118/213481-MS>.
2. Ayman Almohsin, Feven Matthews Michael, Edreese Alsharaeh, and Mohan Raj Krishnan, Self-Healing PAM Composite Hydrogel for Water Shut Off at High Temperatures: Thermal and Rheological Investigations, Paper presented at the *SPE Kuwait Oil & Gas Show and Conference*, Mishref, Kuwait, October 2019, SPE-198664-MS, <https://doi.org/10.2118/198033-MS>.
3. Mohan Raj Krishnan, Ayman Almohsin, Feven Matthews Michael, and Edreese Alsharaeh, Thermodynamic and Kinetic Investigation of Water Absorption by PAM Composite Hydrogel, Paper presented at the *SPE Kuwait Oil & Gas Show and Conference*, Mishref, Kuwait, October 2019, SPE-198033-MS, <https://doi.org/10.2118/198033-MS>.
4. Mohan Raj Krishnan, Ayman Almohsin, Feven Matthews Michael, and Edreese Alsharaeh, Thermal and Rheological Investigations on N, N' methylene bisacrylamide Crosslinked Polyacrylamide Nanocomposite Hydrogels for Water Shut Off Applications, Paper presented at the *Offshore Technology Conference Asia*, Kuala Lumpur, Malaysia, November 2020, OTC-30123-MS, <https://doi.org/10.4043/30123-MS>.

5. Wengang Li, Edreese Alsharaeh, and Mohan Raj Krishnan, Proppant Reinforcement by Surface Polymerization-A Systematic Laboratory Investigation, *MRS Fall Meeting and Exhibit* Nov. 27-Dec. 02, 2022, Boston, MA, USA.
6. Mohan Raj Krishnan, Cheng-Chi Wen, Yu-Chueh Hung, and Rong-Ming Ho, Structural coloration from mesoporous polystyrene thin films, *252<sup>nd</sup> Annual Meeting of American Chemical Society* (Oral) Aug 25-29, 2016, Philadelphia, PA, USA.
7. Sadaki Samitsu, Mohan Raj Krishnan, Yoshihisa Fujii, and Izumi Ichinose, Nanocrystallization Phase Separation: New Route on Fabrication Methodology of Mesoporous Polymers. *The 10<sup>th</sup> SPSJ International Polymer Conference (IPC 2014)* Dec 2-5, 2014, Epochal Tsukuba, Tsukuba, Japan.
8. Mohan Raj Krishnan, Sadaki Samitsu, Yoshihisa Fujii, and Izumi Ichinose, Fabrication of Mesoporous Polymer Nanofibre Network: Functionalization and Their Application in Removal of Aromatic Compounds from Water, *NIMS Annual International Conference*, July 1-3, 2014, Epochal Tsukuba, Tsukuba, Japan.
9. Sadaki Samitsu, Mohan Raj Krishnan, Yoshihisa Fujii, and Izumi Ichinose, Effect of Solvent on Pore Control of Mesoporous Materials, *63<sup>rd</sup> annual meeting of Society for Polymer Science in Japan (SPSJ-63)* May 2014, Nagoya Congress Center, Nagoya, Japan.
10. Sadaki Samitsu, Mohan Raj Krishnan, Yoshihisa Fujii, and Izumi Ichinose, Preparation of Mesoporous Polymers containing Nanoparticles, *63<sup>rd</sup> Symposium on Macromolecules, Society for Polymer Science in Japan (SPSJ)* September 2014, Nagasaki University, Nagasaki, Japan.
11. Sadaki Samitsu, Mohan Raj Krishnan and Izumi Ichinose, Fabrication of Mesoporous Nanofiber Networks through Nano-crystallization of Polymer Solutions, *62<sup>nd</sup> annual meeting of Society for Polymer Science in Japan (SPSJ-62)* May 2013, Yokohama, Japan.
12. Mohan Raj Krishnan, Sadaki Samitsu and Izumi Ichinose, Separation Performance of Polystyrene Nanofibre Network in Aqueous Solution System, *61<sup>st</sup> annual meeting of Society for Polymer Science in Japan (SPSJ-61)* May 2012, Yokohama, Japan.
13. Sadaki Samitsu, Mohan Raj Krishnan and Izumi Ichinose, Mesoporous Polymer Nanofiber with Macroporous Structure, *61<sup>st</sup> annual meeting of Society for Polymer Science in Japan* held on May 2012, Yokohama, Japan.
14. Mohan Raj Krishnan, Sadaki Samitsu and Izumi Ichinose, Fabrication of Polymer Nanofibrous Network with Controlled Fibrous Geometry and Surface Chemistry, *11<sup>th</sup> International Symposium on Biomimetic Materials Processing (BMMP-11)*, Jan 24-26, 2011, Nagoya University, Nagoya, Japan.

## HANDS-ON INSTRUMENTAL EXPERIENCE

1. UV-Visible Spectrophotometer
2. FT-IR Spectrophotometer
3. Raman Spectrophotometer
4. X-ray Diffraction (XRD)
5. Thermo-gravimetric analyzer (TGA)
6. Differential Scanning Calorimeter (DSC)
7. BET and Surface Analyser
8. Field-Emission Scanning Electron Microscopy (FE-SEM); High-Resolution Optical Microscopy
9. High-Resolution Transmission Electron Microscopy (HR-TEM)
10. Atomic Force Microscopy (AFM) and Scanning Probe Microscopy (SPM)
11. Ball-milling Machine
12. Spin-coater and Dip-Coater
13. Tubular and Box Furnaces
14. Nano-mechanical Analyser (Nanoindentation)
15. Viscometer and Dynamic Mechanical Analyser (DMA)

## EXTERNAL AND INTERNAL FUNDING INFORMATION

1. Development of High-Strength Proppants; Funding Number: AFU-1001A; Funding Agency: Saudi Aramco, SAR 0.5 Million (2019-2022)
2. Sand-Polyacrylamide-2D nanomaterials Composite Gels for Enhanced Oil Recovery; AFU-2019-1002C  
Saudi Aramco SAR 0.7 Million (2019-2023)
3. Development of Mechanically Reinforced and Biocompatible Bone Cement; AFU-2019-324563BA; Funding Agency: King Abdullah City for Science and Technology, KACST SAR 1.0 Million (2019-2021)
4. Polyacrylamide Gels for Desert Agriculture Applications; AFU-21-034CSE; Funding Agency: Alfaisal University SAR 0.1 Million (2021-2023)

## DEVELOPED PRODUCTS AND PROTOTYPES

1. Bone Cement (in collaboration with KACST): Bone Fix™
2. High-Strength Polymer Proppants (in collaboration with Saudi Aramco): Propstics™
3. High-Water Retaining Gels for Desert Agriculture (in collaboration with Alfaisal University): Gelfeed™
4. Mesoporous Polymers: Polycapture™

## COURSES TAUGHT AND STUDENT MENTORING

1. General Chemistry I (CHM 101) – For Undergraduate Lifescience Program
2. Engineering Chemistry (CHM 112) - For Undergraduate Engineering Program
3. Chemistry in Everyday Living (CHM 107) - For Undergraduate Business Program
5. Polymer Materials Laboratory (MNT 11L1) - For Graduate Nanoscience and Nanotechnology Program
6. AS a Co-Supervisor for UG: 8 Graduated; 2 Ongoing  
for PG: 4 Graduated; 1 ongoing

## MEMBERSHIPS

1. American Chemical Society (ACS), USA
2. Society for Polymer Science Japan (SPSJ), Japan
3. Polymer Society Taipei (PST), Taiwan

## OTHER SKILLS

1. MS Office (Word; Excel; Powerpoint and Outlook)
2. MS Windows (XP; 10; and 11)
3. Origin Software
4. Autodesk
5. Chemdraw
6. Software installation; maintenance; and deletion.



## REFERENCES

1. Professor Dr. Izumi Ichinose (Ph.D. Thesis Advisor)  
Director, Polymer Materials Unit  
National Institute for Materials Science, Namiki, Tsukuba, Japan.  
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2. Prof. Dr. Edreese Alsharaeh  
Vice-Dean, Dept. of Chemistry  
College of Science, Alfaisal University  
Almather Road, Riyadh, Saudi Arabia  
E-mail: ealsharaeh@alfaisal.edu

## PERSONAL INFORMATION

Nationality: Indian

Marital Status: Married

Languages: English and Tamil

Children: 3