

Dr. M KARTHIK
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Objective:

To pursue a career in the domain of Research and Development that involves Process modeling and Simulation.

Experience:

Jan 2017 - till now Working as a Teaching Faculty (Assistant Professor) for Bachelor Engineering
Dec 2016 - Jan 2017 Research Associate in Indian Institute of Technology (IIT) Bombay
July 2008 - June 2009 Project Assistant in Osmania University, Hyderabad, Telangana

Education:

Doctor of Philosophy (2017) Department of Chemical Engineering, Indian Institute of Technology Bombay, Powai. Mumbai – 400076, India.
Thesis Title “Shear and Particle Incorporation Studies on Thin Film Composite Reverse Osmosis Membranes”
Adviser Prof. A.K. Suresh
Objective

- Novel membrane preparation technique applying shear at lab scale using a rotary cylinder and spin-coater.
- To prepare particle incorporation membranes (Zeolite, silica, silver and ZIF-8 nanoparticle) with dip method and Studied nanoparticle incorporation effect on membrane morphology and performance study.
- To carry out synthesis of TFC membranes with ZIF-8 in a rotary cylinder configuration at different shear rates to understand the effect of particle incorporation as well as the effect of shear in such synthesis

Master of Technology (2008) Department of Chemical Department, IT Banaras Hindu University, Varanasi-221001, India
Specialization Chemical Engineering
Thesis Title Catalytic Partial Oxidation of Ethanol
Objective

- Find out suitable precursor of ethanol oxidation catalyst.
- Study the effect of reaction temperature on the conversion of ethanol (X_{EtOH}) and the selectivity towards products and optimizes the composition of the ethanol oxidation catalyst.

Bachelor of Technology (2006) College of Technology, Osmania University, Hyderabad-500007, India
Specialization Chemical Engineering
Thesis Title Production of Naphthalene
Objective Studied different methods to produce naphthalene and also studied different catalysts.

Core Competency

Programming Skills: C++, MATLAB

Software: Aspen Plus, Aspen HYSYS, and MS EXCEL.

Experimental

- Expertise in measuring surface/interfacial tension (pendent drop, sessile drop, dynamic surface tension), contact angle
- Hands on experience on Scanning electron microscope (SEM), Particle size analysis (Dynamic Light Scattering, XRD), measurement of surface charge (Zeta-CAD), measurement of film thickness with profilometer, AFM, Thermogravimetry (TG-DTA-DSC) and membrane testing cell

Guided B Tech Projects

- Design projects with Aspen plus and Aspen HYSYS Simulation. And also taught Process modelling and simulation subject to the Engineering students.
- Process modelling of DME (Dimethyl Ether) production
- Designing experiments with Aspen HYSYS simulation to improve distillation systems
- Process simulation and Integration of methanol production
- Simulation of chemical process: BTX Separation
- Simulation of ethyl acetate synthesis via reactive distillation
- Simulation study of Cryogenic air separation unit using Aspen HYSYS
- CO₂ Absorption and desorption simulation with Aspen HYSYS

Publication Proceedings

1. Karthik M., Gohil J.M., Suresh A.K. (2017) *"Probing the Thickness and Roughness of the functional Layer in Thin Film Composite Reverse Osmosis Membranes"*, International Journal of hydrogen energy (42) 26464-26747.
2. Karthik M., Suresh A.K. (2017) *"Preparation and properties of Thin Film Composite membranes by a Spin Coating method"* (Ready for submission)
3. Karthik M., Suresh A.K. (2017) *"Shear and zeolitic imidazolate framework eight effects on polyamide membranes"* (Ready for submission)
4. Karthik M., Suresh A.K. (2017) *"Particle incorporation of Thin film composite reverse osmosis membranes"* (Ready for submission)

Conference Proceedings

1. Karthik, M., Suresh, A.K., *"Preparation, and properties of thin film composite membranes by a spin coating method"*, International Conference on Filtration, FILTECH 2013, Germany, 22nd - 24th October 2013.
2. Karthik M., Gohil J.M., Suresh A.K. *"Probing the Thickness and Roughness of the functional Layer in Thin Film Composite Reverse Osmosis Membranes"*, International Conference on Membrane Technology and its Applications (MemSep 2017), NIT Tiruchirapalli, India., 21st – 23rd Feb 2017.

Oral/ Poster Presentations

1. Karthik, M., Suresh, A.K., *"Reverse osmosis TFC membranes: Study of TFC membranes with spin coating and compared with dip method"*, National Conference (Chemference) on Chemical Engineering, IIT Bombay & ICT Mumbai, India, 10-11th December 2012.

2. Karthik, M., Suresh, A.K., "Reverse osmosis TFC membranes: Particle incorporation in polyamide membranes", Research scholars symposium, IIT Bombay 2015.
3. Karthik, M., Suresh, A.K., "Reverse osmosis TFC membranes: study of TFC and TFNC membranes", Research scholars symposium, IIT Bombay 2012.
4. Participation in National Conference on "Challenges in Engineering Teaching and Research" (NCCETR), MGMCET, Navi Mumbai, 3-4th June 2018.
5. Participation in National Conference on "Integrating Human Values in Professional Education" (NCIHVPE), MGMCET, Navi Mumbai, 12-13th June 2018.
6. Participation in 2 days State level Seminar on "Process Intensification and Integration-A need of Present and Future World", MITAOE, Alandi, Pune, 21-22nd Dec 2018
7. Attended Short Term Training Program (STTP) for Teaching Professionals and Plant visit, RC, Chembur, Mumbai, 10th – 11th Dec 2018
8. Participation in 3-day International event – FesTalk 2018 from 13th -15th December 2018 at MIT Kothrud, Pune, MH, India.

Organization of Seminars

- Conducted one day orientation seminar (WAVE 2018) on "Recent trends in water technologies enhancing skills & Career opportunities towards better placements" in MGM Campus, Kamothe, Navi Mumbai, Maharashtra, India; 17th March 2018.
- Conducted 14th National Conference (Prakalp'2018), MIT Academic of Engineering, Alandi, Pune, Maharashtra; 28th and 29th Sept, 2018.

Awards

- Won the best poster award, for the poster "Reverse osmosis TFC membranes: Study of TFC membranes with spin coating and compared with dip method." at National Conference Chemference-2012, Mumbai, India.
- Delivered Expert lecture on "How to write Research Paper" IT Department, SVIT, Nashik; 6th March 2020

Workshops Attended

- Workshop on "Advanced analytical techniques" at SAIF, IIT Bombay
- Workshop on "Central facility" at SAIF, IIT Bombay
- Industrial visit for RCF, Mumbai

References

Prof. A.K Suresh	Prof. Jayesh Bellare	Dr. K.V Reddy
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Declaration: I hereby declare that the details furnished above are true and correct to the best of my knowledge and belief.

Date 5th Feb 2021
Place Nashik, India

(M Karthik)