

HARI MAHALINGAM

Professor of Chemical Engineering | NITK Surathkal

Photocatalysis • Process Modelling & Simulation • Wastewater Treatment

Email: mhari@nitk.edu.in

30 years

R&D experience

21 years

Teaching experience

12+ years

Academic administration

38

Selected publications

◆ RESEARCH PROFILE

Research focuses on heterogeneous photocatalysis and polymer-supported photocatalysts for wastewater treatment, process modelling/simulation/optimization, and novel multiphase reactors. *Current work includes low-cost immobilized and floating TiO_2 -based systems for solar-driven pollutant degradation.*

◆ ACADEMIC & PROFESSIONAL EXPERIENCE

Oct 2023 – Present

National Institute of Technology Karnataka (NITK), Surathkal

Professor, Department of Chemical Engineering

Jun 2015 – Sep 2023

National Institute of Technology Karnataka (NITK), Surathkal

Associate Professor, Department of Chemical Engineering

Head of Department (Sep 2017 – Aug 2019)

Jul 2005 – Jun 2015

Jaypee University of Engineering & Technology (JUET), Guna

Founding Head of Department (Jul 2005–May 2015); Associate Professor (Apr 2008–Jun 2015); Assistant Professor (Jul 2005–Mar 2008)

Feb 2003 – Feb 2004

The Logistics Institute – Asia Pacific, Singapore

Research Fellow

Sep 2001 – Aug 2002

LGC, INP – Toulouse, France

Postdoctoral Researcher

◆ EDUCATION

1997–2001 National University of Singapore — Ph.D., Chemical Engineering

Studies on mixing in circulating flows | Advisor: Prof. Reginald B.H. Tan

1994–1995 Anna University (A.C.Tech.), Chennai — M.Tech., Chemical Engineering

Studies on inverse fluidization in an airlift reactor | Advisor: Prof. M. Velan

1990–1994 Anna University (A.C.Tech.), Chennai — B.Tech., Chemical Engineering

Design project: Manufacture of Acetonitrile | Guide: Prof. T.V. Subramaniam

◆ RESEARCH THEMES

- Heterogeneous photocatalysis and polymer-supported photocatalysis
- Solar-driven wastewater treatment and emerging contaminants
- Process modelling, simulation and optimization
- Novel multiphase reactors
- Biomass waste to energy

◆ RESEARCH SUPERVISION & SCHOLARLY ACTIVITY

- Ph.D.: 5 completed + 1 submitted; 2 on going.
- M.Tech.: 30 completed; 3 ongoing.
- 38 selected publications; 1,136 citations; h-index 15.
- 20+ selected conference presentations.

- Reviewer for Journal of Environmental Chemical Engineering, Journal of Hazardous Materials, Environmental Sciences and Pollution Research, Materials Letters, Indian Chemical Engineer, among others.
- Doctoral thesis examiner for Anna University, Gujarat Technological University. Kalasalingam University etc.

◆ SELECTED PUBLICATIONS

- 2021 Manasa M., P.R. Chandewar & H. Mahalingam.** Photocatalytic degradation of ciprofloxacin & norfloxacin and disinfection studies under solar light using boron & cerium doped TiO₂ catalysts synthesized by green EDTA-citrate method. Catalysis Today, 375, 522–536. I.F. 6.8
- 2020 S. Das & H. Mahalingam.** Novel immobilized ternary photocatalytic polymer film based airlift reactor for efficient degradation of complex phthalocyanine dye wastewater. Journal of Hazardous Materials, 383, 121219. I.F. 10.6
- 2019 S. Das & H. Mahalingam.** Dye degradation studies using immobilized pristine and waste polystyrene-TiO₂/rGO/g-C₃N₄ nanocomposite photocatalytic film in a novel airlift reactor under solar light. Journal of Environmental Chemical Engineering, 7(5), 103289. I.F. 5.9
- 2019 S. Das & H. Mahalingam.** Exploring the synergistic interactions of TiO₂, rGO, and g-C₃N₄ catalyst admixtures in a polystyrene nanocomposite photocatalytic film for wastewater treatment: Unary, binary and ternary systems. Journal of Environmental Chemical Engineering, 7(5), 103246. I.F. 5.9
- 2014 S. Singh, P.K. Singh & H. Mahalingam.** Novel floating Ag⁺-doped TiO₂/PS photocatalysts for treatment of dye wastewater. Industrial & Engineering Chemistry Research, 53(42), 16332–16340
- 2005 I.A. Karimi, M. Sharafali & H. Mahalingam.** Scheduling tank container movements for chemical logistics. AIChE Journal, 51(1), 178–197. I.F. 3.99
- 1999 M. Hari & R.B.H. Tan.** Mixing in circulating flows. Chemical Engineering Journal, 73(1), 29–35. I.F. 13.3

◆ SELECTED INTERNATIONAL CONFERENCE PRESENTATIONS

- 2019 APCAT-8, Bangkok, Thailand**
Photocatalytic degradation of ciprofloxacin and norfloxacin under solar light using boron doped titanium dioxide catalysts synthesized by green EDTA-citrate method.
- 2019 8th International Engineering Symposium (IES 2019), Kumamoto University, Japan**
Photocatalytic treatment of emerging contaminants using ceria-doped TiO₂ under solar, UV-C and UV-A irradiation.
- 2017 APCAT-7, Mumbai, India**
Systematic study of two dopants into nano-crystalline ceria and evaluation of its photocatalytic performance.
- 2017 APCAT-7, Mumbai, India**
Photocatalytic treatment of dye wastewater using nano crystalline ceria.
- 2015 3rd Water Research Conference, Shenzhen, China**
An effective strewn silver ion-doped polystyrene-supported floating titania photocatalyst for treatment of dye wastewaters under UV and natural sunlight.
- 2003 INFORMS, Atlanta, USA**
An Event-Based Approach to the Management of Empty Tank Containers.
- 2001 Mixing XVIII, Poconos, USA**
A dynamical systems approach to mixing in stirred tanks.
- 1999 Mixing XVII, Banff, Canada**
Mixing in circulating flows.

◆ AWARDS, HONORS & DISTINCTIONS

- CSIR (Government of India) scholarships for study at Anna University (1996–1997) and National University of Singapore (1997–2001).
- Ranked 1st in the M.Tech. program.
- Best Paper Award, 5th International Conference on Chemical, Biological and Environmental Engineering (ICBEE 2013), New Delhi.
- Best Oral Presentation Award, International Conference on Advances in Sustainable Research for Energy and Environment Management (ASREEM 2021), NIT Surat.

◆ TEACHING, ACADEMIC SERVICE & EXAMINATION

- Graduate Teaching Assistant for two courses at the National University of Singapore (1997–2001) and two courses at Anna University (1996).

- Question-paper setter for Samrat Ashok Technological Institute, Vidisha, M.P. and Anna University, Chennai.
- Doctoral thesis examiner for Anna University, Gujarat Technological University and Kalasalingam University.

◆ RESEARCH & TECHNICAL SKILLS

- Process simulation / computation: ASPEN PLUS, CHEMCAD, GAMS, Mixsim, Fluent, Fortran, MATLAB.
- Experimental techniques: Particle Image Velocimetry (PIV) and two-dimensional trajectography.

◆ WORKSHOPS & TRAINING PROGRAMS ORGANIZED

Year	Program	Dates	Sponsor	Participants
2016	Nanomaterials in Fuel cells and Catalysis (NMCF 2016)	29 Sep – 1 Oct 2016	TEQIP II	70
2010	Advances in Separation Processes	13–18 Dec 2010	JUET Guna	25
2011	Numerical Methods	4–8 Jul 2011	IUCEE/JUET Guna	32