

# C.Ravikumar

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CONTACT INFORMATION	Assistant Professor Department of Chemical Engineering Visvesvaraya National Institute of Technology (VNIT) Nagpur-440010, Maharashtra Phone: +91- 712-280-1785, +917639461007 Email: <a href="mailto:ravikumarc2006@gmail.com">ravikumarc2006@gmail.com</a> , <a href="mailto:ravikumarc@che.vnit.ac.in">ravikumarc@che.vnit.ac.in</a>
RESEARCH INTERESTS	Colloids and Interface Science, Nanotechnology, Drug-Delivery, Materials Development, Modeling, Water Treatment
EDUCATION	<b>Doctor of Philosophy</b> 2006-2011  Department of Chemical Engineering (Jan'2006- June 2007) Indian Institute of Technology Kanpur (IIT Kanpur), INDIA  Department of Chemical Engineering (July'2007- Aug 2011) Indian Institute of Technology Bombay (IIT Bombay), INDIA  <b>Master of Engineering</b> 2002-2004  Department of Chemical Engineering Annamalai University, INDIA  <b>Bachelor of Technology</b> 1999-2002  Department of Chemical Engineering University of Madras, INDIA  <b>Diploma In Petro-Chemical Technology</b> 1996-1999  Technical Board of Education, Chennai, INDIA
RESEARCH EXPERIENCE	<b>New Jersey Institute of Technology</b> , USA (Sep 2012-Jan 2014)    Postdoctoral Research  Project: Preparation of poorly water-soluble Drug Nanoparticles by top-down approach Supervisor: Distinguished Prof. Rajesh N. Dave  <b>IIT Bombay</b> (2006-2011)    Ph.D. Research  Project: Nanoparticle Formation in Aqueous and Organic Medium: Experiments, Mechanism and Modeling Supervisor: Prof. Rajdip Bandyopadhyaya  <b>Annamalai University</b> (2002-2004)    M.E.Research  Project: Production of Penicillin G-Acylase Supervisor: Prof.T.Viruthagiri

INDUSTRIAL  
EXPERIENCE

**Battelle Science and India Pvt. Ltd, Pune (Aug'10-Aug'12)**

Researcher –I  
Project: Materials Development, Process Design

TEACHING  
EXPERIENCE

**Visvesvaraya National Institute of Technology Nagpur (March'15-till date)**

Assistant Professor:  
UG/PG Courses taught: Colloids and Interfacial Engineering, Materials Science and Engineering, Chemical Technology, Safety and Risk Analysis  
Laboratories handled: Mass Transfer-I, Mass Transfer-II

**Sivasubramaniya Nadar (SSN) College of Engg., Chennai, (June '14 – March '15)**

Associate Professor  
UG/PG Courses taught: Energy and Environmental Engineering

**Vivekanandhaa College of Engg. for Women, Tamilnadu, (June'04 – Dec'05)**

Lecturer  
UG courses taught: Chemical Reaction Engineering, Process Calculations,  
and Mass Transfer  
Laboratories handled: Unit Operations and Fluid mechanics

SPONSORED  
PROJECTS

**Nanoparticles of different shapes conjugated with drugs to achieve enhanced therapeutic efficacy in the treatment of cancer** (EMR/2016/003320 - Ongoing)

Duration: March'17-March'20  
Project Cost: 28 lakhs  
Role: Principal Investigator  
Sponsoring Agency: DST-SERB Extra Mural Research, Govt. of India

**Removal/reduction of water from nitrocellulose waste acid and spent acid** (Ongoing)

Duration: Sep'17-Sep'18  
Project Cost: 11.73 lakhs  
Role: Co-Principal Investigator  
Sponsoring Agency: Ordnance Factory Bhandara, Maharashtra (MoD, Govt. of India)

**Experimental investigation of heat transfer enhancement using stable nanofluids as coolant for automobile radiators** (Returned to SSN trust, as I moved to VNIT Nagpur)

Duration: Aug'15  
Project Cost: 5.5 lakhs  
Role: Principal Investigator  
Sponsoring Agency: SSN Trust, Chennai.

**Design and development of biomass pyrolyzer with combined hydrotreatment for production of hydrocarbon fuel oils** (Completed)

Duration: Sep'14-March'15  
Project Cost: 0.25 lakhs  
Role: Principal Investigator  
Sponsoring Agency: Chellammal Agro Project Award, SSN College of Engg. Chennai.

Ethayaraja. M, **Ravikumar. C**, Muthukumaran. D, Dutta, K, Bandyopadhyaya. R. CdS-ZnS Core-Shell Nanoparticle Formation Experiment Mechanism and Simulation. *Journal of Physical Chemistry C*, 111, 3246 –3252, 2007 [Impact factor: 4.536, Citations: 79]

**Ravikumar.C**, Bandyopadhyaya. R. Discrete-Continuous Hybrid Simulation of Monodisperse Nanoparticle Formation, *Int. J. Chemical Sciences*, 5, 1764 – 1774, 2007, [Impact factor: 0.6, Citations: 02]

**Ravikumar.C**, Singh. S.K. Bandyopadhyaya. R, Formation of nanoparticles of water-soluble molecules: Experiments and mechanism. *Journal of Physical Chemistry C*, 114, 8806 – 8813, 2010 [Impact factor: 4.536, Citations: 12]

Kumar. S, **Ravikumar.C**, Bandyopadhyaya. R. State of dispersion of magnetic nanoparticles in an aqueous medium Experiments and Monte Carlo simulation. *Langmuir*, 26, 18320 – 18330, 2010 [Impact factor: 3.833, Citations: 24]

**Ravikumar.C**, Bandyopadhyaya. R. Mechanistic study on magnetite nanoparticle formation in thermal decomposition and coprecipitation routes. *Journal of Physical Chemistry C*, 115, 1380 –1387, 2011[ Impact factor: 4.536, Citations: 40]

**Ravikumar. C**, Kumar. S, Bandyopadhyaya. R. Aggregation of dextran-coated magnetic nanoparticles in aqueous medium: Experiments and Monte Carlo simulation, *Colloids and Surfaces A Physicochemical and Eng. Aspects*, 403, 1-6, 2012[ Impact factor: 2.714, Citations: 22]

Sapana S. Madan, Kailas. L. Wasewar, **RaviKumar.C**, Adsorption kinetics, thermodynamics, and equilibrium of  $\alpha$ -toluic acid onto calcium peroxide nanoparticles. *Advanced Powder Technology*, 27, 2112-2120, 2016[ Impact factor: 2.659, Citations: 07]

Suganya. S, Senthil Kumar. P, Saravanan. A, Sundar Rajan. P, **Ravikumar.C**, Computation of adsorption parameters for the removal of dye from wastewater by microwave assisted sawdust: Theoretical and experimental analysis. *Environmental Toxicology and Pharmacology*, 50, 45-57, 2017[Impact factor: 2.313, Citations: 01]

Sapana S. Madan, Kailas L. Wasewar, **RaviKumar.C**, Optimization of adsorptive removal of  $\alpha$ -toluic acid by CaO<sub>2</sub> nanoparticles using response surface methodology *Resource-Efficient Technologies*, 3, 329-336, 2017[Impact factor: 0, Citations: 01]

**Ravikumar.C**, Senthil Kumar.P, Subhashni S.K., Tejaswini P.V., Varshini V. Microwave assisted fast pyrolysis of corn cob, corn stover, sawdust and rice straw: Experimental investigation on bio-oil yield and high heating values. *Sustainable Materials and Technologies*, 11, 19-27, 2017 [Source Normalized Impact factor: 3.240, Citations: 05]

Tharaneedhar.V, Senthil Kumar.P, Saravanan.A, **Ravikumar.C**, Jaikumar.V. Prediction and interpretation of adsorption parameters for the sequestration of methylene blue dye from aqueous solution using microwave assisted corncob activated carbon. *Sustainable Materials and Technologies*, 11, 01-11, 2017 [Source Normalized Impact factor: 3.240, Citations: 04]

CONFERENCE  
PUBLICATIONS

**Ravikumar. C**, Ethayaraja, M. Bandyopadhyaya. R. Discrete-Continuous Hybrid Simulation of Monodisperse Nanoparticle Formation. 2007, *National Conference on Frontiers in Chemical Engineering (NCFCE 2007)*, IIT Guwahati, India, December 12 – 14, 2007.

**Ravikumar. C**, Bandyopadhyaya. R. Nanoparticle Formation by Evaporation of Water-in-Oil Microemulsion: Experiments and Mechanism, 2007, *Indian Chemical Engineering Congress (CHEMCON)*, Kolkata, India, Page:3107, December 27 – 30, 2007

**Ravikumar.C**, Bandyopadhyaya. R. Superparamagnetic Magnetite Nanoparticles: Important Features, Synthesis and Applications, *National Seminar on Recent Advances in Science and Technology, theme: Nanotechnology*, ABIT, Cuttack, 8-9 Feb'2008

**Ravikumar,C**, Bandyopadhyaya. R. Comparison of Co-Precipitation and Thermal Decomposition Routes for the Preparation of Poly (Acrylic Acid) Coated Magnetite Nanoparticle Suspension in Water, 2009, *4<sup>th</sup> Asian Particle Technology Symposium (APT 2009)*, New Delhi, India. Page: APT2009/121, 14-16 September, 2009

**Ravikumar.C**, Preetha Sasi, Meenakshi Singh, Pramod P. Wangikar and R.Bandyopadhyaya. Experiments and Modeling of Iron oxide (Fe<sub>3</sub>O<sub>4</sub>) Nanoparticle Uptake by HepG2 Cells, 2010, *International conference on 'Nanoscience and Nanotechnology'* (ICONSAT), IIT Bombay, Feb.17-20, 2010

**Ravikumar. C**, Bandyopadhyaya. R. Controlled Magnetite Nanoparticle Morphology for Better Cellular Uptake: Experiments and Models. 2012, *AICHE Annual Meeting*, Pittsburgh, PA, USA, Page: 286e, 28<sup>th</sup> Nov'12-2<sup>nd</sup> Oct'12

**Ravikumar.C**, Afolawemi Afolabi Naveen Kumar Reddy Rajesh Dave Ecevit Bilgili An Intensified media milling process for the faster production of dense, stable drug suspensions with sub-100 nanometer particles, 2013 AICHE Annual Meeting, San Francisco, CA, USA, Page: 674a, 3-8<sup>th</sup> Nov'13.

AWARDS,  
PATENTS,  
PRIZES ETC.

2009, **Best oral presentation award**, Research Scholars Symposium, IIT Bombay

2009, **Best oral and poster award**, Fourth Asian Particle Technology Symposium (APT-2009), 14-16 September 2009, New Delhi, India

2012, **Award of excellence in Ph.D. thesis work**, Department of Chemical Engineering, IIT Bombay

2012, **Best employee award**, Battelle Science and Technology India, Pune

2013, **Certificate of appreciation**, Summer research experiences for Teachers, NJIT, USA

STTP/  
WORKSHOP/  
ORGANIZED

2016, Five days STTP on 'Nanoscience and Nanotechnology' VNIT Nagpur, 6-10<sup>th</sup> July, '16

2014, One day workshop on 'Recent Practices in Chemical and Pharmaceutical Industries', SSN College of Engineering, Chennai, 19<sup>th</sup> September 2014

INVITED TALKS

Nanoparticle formation in top-down approaches' VNIT Nagpur, STTP on 'Intensification in Process Industry' VNIT Nagpur, 30<sup>th</sup> March 2016

Nanoparticle Formation-Top down and Bottom-up approaches, Central Institute of Mining and Fuel Research, Nagpur, 28<sup>th</sup> Feb'16 (National Science Day)

Nanotechnology, STTP on 'Recent Trends in Chemical and Biochemical Engineering'-VNIT Nagpur , 31<sup>st</sup> January 2016

## RESEARCH GUIDANCE

### Ph.D. Guidance:

**Prashil Narnaware** (Joined in July-2016)

Thesis topic: Janus nanoparticles consisting metal and metal oxides for catalytic applications.

**Abhiram Yadav** (Joined under DST-EMR Project, Jan'18)

Thesis topic: Nanoparticles of different shapes conjugated with drugs to achieve enhanced therapeutic efficacy in treatment of cancer

### M.Tech Guidance:

**Muthu Raja.V.** (July'15 –June'17)

Thesis topic: Stability analysis of PEG-coated magnetic nanoparticles in water (currently Pursuing Ph.D. at IIT Hyderabad)

**Akshith Kanchi** (Joined in Jan'18)

Thesis topic: Nanoparticle formation at the liquid-liquid interface for sensing applications.

### B.Tech Project Guidance:

**Karthik.V** (May'16)

Topic: Modeling of anisotropic nanoparticle formation

**Sandeep NSK** (May'16)

Topic: Optimization of synthesis of nanoparticles using response surface methodology

**Akshay Ratnaparkhe and Aditya Anand Singh** (May'16)

Topic: Industrial wastewater treatment using nano-filtration technique

**Mahima Rana and Vaishakhi Suresh** (May'17)

Topic: Analysis of water of Nag river

**Om Ji Tiwari** (May'17)

Topic: Production and testing of Iodised salt

**Modhu Sailan Bagani** (May'17)

Topic: Theoretical studies on energy conservation with use of solar panels

## SUMMER INTERNS

**Saaksshi Tenpe** (ICT Mumbai) (May17-June'17)

Project topic: Removal of nitrocellulose fine particles from spent water

**ACADEMIC DUTIES**

Stage committee member-13<sup>th</sup> convocation, VNIT Nagpur, 15<sup>th</sup> September'15.  
 Institute Representative for IIT JEE Advanced Examinations (2015, 2017)  
 Faculty Coordinator, I year B.Tech Chemical Engg. Students 'Students Mentor Program'-VNIT Nagpur, July, 2016-July, July 2017.

Ph.D. Students Coordinator, Department of Chemical Engineering, July'2015-till date.  
 Lab In charge-UG Mass Transfer Core Laboratory-II, July'2015-till date.  
 B.Tech Student Project Coordinator, VNIT Nagpur, July'2016-till date.  
 M.Tech class committee chairman, VNIT Nagpur, Jan'2016-July'2016.  
 Organizing committee member-IIFEA conference-VNIT, 5-7, February 2016  
 Faculty Advisor UG Chemical Engineering students (Batch: 2016-2020)

**PROFESSIONAL AFFILIATIONS**

Organizer: Particle and Strip Film Engineering Workshop, 2013, NJIT.  
 Member of American Institute of Chemical Engineers (AIChE)  
 Organizer: Chemference'07, Indian Institute of Technology Kanpur, India.  
 Reviewer: Advance Powder Technology, Applied Nanoscience, Crystal Growth and Design.

**REFERENCES**

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Prof. Rajesh N. Dave'  
 Distinguished Professor  
 Department of Chemical, Biological and  
 Pharmaceutical Engineering,  
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