KEDAR GIRISH JADHAV

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PROFILE

- 3 years of experience in polymer chemistry, synthesis of conjugated polymers, characterization techniques for polymers, synthesis of small organic molecules and characterization
- 3+ years of experience in polymer engineering, polymer processing techniques, material characterisation techniques, polymer blends and engineering polymers, understanding of structure-property relationships important for product development and applications
- Expertise in polymer processing equipment like extrusion, injection Molding, compression molding, microcompounder, two roll mill
- Expertise in polymer characterization techniques -Universal Testing Machine (UTM), Rosand rheometer, impact testing, DSC, TGA, Heat Distortion Temperature (HDT)
- Expertise in analytical instrumental techniques NMR spectroscopy, variable temperature NMR spectroscopy, IR, UV-Vis spectroscopy, flash column chromatography
- Hands-on experience - SEM, TEM, DLS
- Excellent interpersonal skills, strong interdisciplinary work history and a team player

EDUCATION

Master of Science (M.S.), Chemistry

- University of Massachusetts, Amherst Final Defense & Completion: December 2011
- Dissertation : “Synthesis of novel conjugated monomers for polymer photovoltaics”
- Principal Investigator: Prof. D. Venkataraman

Master of Technology (M.Tech.), Polymer Engineering & Technology

- Institute of Chemical Technology (erstwhile UDCT), Mumbai University, India 2006-2008
- Dissertation : “Studies in blends of polyester”
- Principal Investigator: Dr. S. T. Mhaske

Bachelor of Technology (B.Tech.), Polymer Engineering & Technology

- Institute of Chemical Technology (erstwhile UDCT), Mumbai University, India 2002-2006

TECHNICAL EXPERTISE

Polymer Engineering & Polymer Chemistry

- Polymer Processing and Compounding
- Synthesis of Conjugated Polymers
- Polymer Blends & Engineering Polymers
- Synthesis of small organic molecules

Analytical Chemistry

- NMR, IR, UV- VIS, SEM, TEM, GC, DLS, GPC
- UTM, HDT, DSC, TGA, rheometer

Software Skills

- Chem Draw, Chem Office, Endnote, Adobe Illustrator
- MS Office, MS DOS, Adobe Photoshop

RESEARCH EXPERIENCE

Graduate Research Assistant University of Massachusetts, Amherst Sep 2008 -present

- Designed and developed a strategy to synthesize novel conjugated polymers based on triazole attached to thiophene and novel acceptor polymers based on benzthiadiazole. Triazole when attached to thiophene as a side chain lowers band gap of a polymer and acts as an electron donor
- Successfully synthesized homopolymers and alternating copolymers of benzthiadiazole. These acceptor polymers has shown broad absorption spectra (250-650nm) and good electron mobility
- Designed & synthesized rigid molecular scaffolds based on Xanthene & Biphenylene molecules to investigate the effect of molecular motions on proton transfer

Graduate Research Assistant Institute of Chemical Technology (ICT), Mumbai 2006-2008

- Investigated polymer blends of PBT/PP, PTT/PP to improve impact properties. 2-fold increase in impact properties was achieved with optimization of processing parameters and compatibilizer concentration of PP-g-MA & PP-g-AA

Institute of Chemical Technology (ICT), Mumbai University, India Dec 2005-Apr 2006

- Successfully developed a strategy to improve impact properties of engineering polymers such as Nylon 6,6 and PBT using polyolefinic elastomers

National Chemical Laboratory, Pune, India Summer 2004

- Designed parameters for melt compounding of polyolefin clay nanocomposites using microcompounder
- Designed batch permeation cell to characterize nanocomposite films

INDUSTRIAL EXPERIENCE

- Synthesis & Formulation of PVC compound for wire applications – Undergraduate Summer Intern at Kalpana Industries Ltd, Daman, India

PUBLICATIONS

- Gavvalpalli, N.; Yurt, S.; **Jadhav, K. G.**; Venkataraman, D., "Impact of Pendant 1, 2, 3-triazole on the Synthesis and properties of Thiophene-based Polymers", *Macromolecules* **2010**,*43*,8045–8050
- Gavvalpalli, N.; **Jadhav, K. G.**; Abhishek Kumar, Akshay Kokil, Serkan Yurt, Jayant Kumar, Venakataraman,D., "Enhancing sensing of nitroaromatic vapours by thiophene-based polymer films" (**DOI: 10.1039/C1JM12949J**, *Journal of Material Chemistry*)
- Gavvalpalli, N.; **Jadhav, K. G.**; Treynor, O.; Venkataraman, D.,"Synthesis of new blue acceptor polymer based on benzthiadiazole for polymer photovoltaics",(to be submitted to *Journal of American Chemical Society*)
- Basak, D.; Surampudi, S.; **Jadhav, K. G.**; Venkataraman, D.,"Impact of molecular motions on proton transfer", (to be submitted to *Journal of Organic Chemistry*)
- **Jadhav, K. G.**; Patel, S. U.; Mhaske, S. T., "Polymers in Automotives: Development & Applications", *Popular Plastics & Packaging* **2007**, *6*, 87-91
- **Jadhav, K. G.**; Jadhav, N.; Mhaske, S. T. "Nanotechnology: A novel approach to surface coatings", *Bombay Technologist, Journal of Technological Association* **2007**, *55*, 18-22

AWARDS

- Recipient, Recipient of Merit cum means scholarship (Tuition fee waiver) awarded by Manjula Baghmal Trust, 2003-04 & 2004-05
- Awarded scholarship by Institute of Chemical Technology, (Tuition fee waiver), 2002-03

TEACHING EXPERIENCE

Teaching Assistant, Department of Chemistry, University of Massachusetts, Amherst, MA

- Organic Chemistry for Majors (Chem 265, Chem 266) Lab, 4 quarters, Supervised and taught weekly lab synthesis for about 40 students
- Organic Chemistry (Chem 261, Chem 262) Class, Involved teaching and office hours along discussion sections for about 350 students; and was rated one of the best teaching assistants by the students
- Mentored undergraduate students in research lab
- Taught Paints Technology subjects for the diploma course of Color Society at ICT

PROFESSIONAL AFFILIATIONS

- American Chemical Society 2009-present
- Indian Plastics Institute (IPI) 2005-2006

REFERENCES

- Prof. D. Venkatarman, Professor of Chemistry, University of Massachusetts,Amherst, MA
  dv@chem.umass.edu (413) 545-2028
- Prof. Peter Samal, Director, Organic & Inorganic Laboratory Instruction, Chemical Education
  University of Massachusetts, Amherst, MA
  samal@chem.umass.edu (413) 545-4836
- Dr. S. T. Mhaske, Lecturer in Technology of Plastics & PPV, ICT, Mumbai, India
  st.mhaske@ictmumbai.edu.in , stmhaske@gmail.com +91 9930843522