

Maria Rosario Coleman

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EXPERIENCE

Co-Director, Institute for Sustainable Engineering Materials, University of Toledo, Toledo, OH (1/1/2010-present)

Professor, Chemical and Environmental Engineering Department, University of Toledo, Toledo, OH (8/28/2003 - Present).

Associate Professor, Chemical and Environmental Engineering Department, University of Toledo, Toledo, OH (8/19/98 – 8/27/2003).

Associate Professor, Dept. of Chemical Engineering, University of Arkansas, Fayetteville, AR (8/15/97-8/15/98).

Assistant Professor, Ray C. Adam Young Faculty Chair of Chemical Engineering, Dept. of Chemical Engineering, University of Arkansas, Fayetteville, AR (7/01/92-8/14/97).

EDUCATION

B.S., Chemical Engineering, Louisiana Tech University, Ruston, 1986

Ph.D., Chemical Engineering, University of Texas at Austin, 1992

Advisor: William J. Koros

Title: "Isomers of Fluorine-Containing Polyimides for Gas Separations Membranes"

HONORS

Outstanding Research Award, College of Engineering, 2004

Outstanding Teacher, University of Toledo (2002-2003)

Outstanding Teacher, College of Engineering, University of Toledo (2000-2001)

National Science Foundation Presidential Faculty Fellowship (1995-2000)

Phillips Petroleum Company Outstanding Faculty Member, College of Engineering, University of Arkansas (1996-1997)

Ray C. Adam Young Faculty Chair in Chemical Engineering (1992-1997)

Patents

Molecular Synthesis and Net Shape Fabrication and Manufacturing of Polymer Nanocomposites, US Patent Application, 2004

Functional Nanocomposite Network Membranes, Patent Application, 2009

Reviewed Journal Publications (Examples of 45 reviewed publications)

1. Li, X. and M.R. Coleman "Functionalization of carbon nanofibers with diamine and polyimide oligmer", *Carbon*, **46**, Issue: 8, pp. 1115-1125 (2008). (impact factor 4.26 in 2008)
2. Iyer, P. and M.R. Coleman "Thermal and mechanical properties of blended polyimide & amine functionalized poly(orthosiloxane) composite" *Journal Applied Polymer Science* 108, Issue: 4, 2691 – 2699 , (2008). (impact factor 1.2 in 2008)

3. Mapkar, J., G. Iyer and M.R. Coleman "Functionalization of Carbon Nanofibers with Elastomeric-Block Copolymers using Carbodiimide Chemistry", *Applied Surface Science*, **255** 4806-4813 (2009), pp. (Impact Factor: 1.41 in 2008)
4. Iyer, P., J. Mapkar, and M.R. Coleman, "Hybrid Functional Nanomaterials: POSS Functionalized Carbon Nanofiber," *Nanotechnology*, **20**, , 325603-325603 (2009) (impact factor 3.45 in 2008)
5. Iyer, P., G. Iyer, and M.R. Coleman "Gas Transport Properties of Polyimide-POSS Nanocomposites", *J. Mem. Sci.*, **358**, 26-32 (2010)
6. Li. P., Z. Qichao, J. Anderson, S. Varanasi and M.R. Coleman, "Synthesis of Copolyimides based on Room Temperature Ionic Liquid Diamines", *J. Poly. Sci. Part A: Poly. Chem.*, **48**, 4036-4046 (2010)
7. Hausman, R., B., Digman, B., M.R. Coleman, T.S. Chung and **I. Escobar**, "Functionalization of Polybenzimidazole membranes to Impart Negative Charge and Hydrophilicity" *J. Membrane Science*, **363**, 195-203, (2010)
8. Hakim-elahi, H.; L. Hu, B. Rupp, and **M.R. Coleman**, "Synthesis and Characterization of Transparent Alumina Reinforced Polycarbonate Nanocomposites" *Polymer*, **51**, 2494-2502 (2010)
9. Sharma, G., C. Lind and M. R. Coleman "Preparation and Properties of Polyimide Nanocomposites with Negative Thermal Expansion Nanoparticle Filler" *Materials Chemistry and Physics*, **137**, 448-457 (2012).
10. Mapkar, J., Berhan, L. and M.R. Coleman, "Formation of High Loading Flexible Carbon Nanofiber Network Composites", *Composite Science and Technology*, **75**, 1-6 (2013).
11. Li, P. and M.R. Coleman, "Synthesis of Room Temperature Ionic Liquid Based Random Copolyimides for Gas Separation Applications" *European Polymer Journal*, **49**, 482-491 (2013).
12. Li. X. and M.R. Coleman, "Impact of Processing Method and Surface Functionality on Carbon Nanofiber Dispersion in Polyimide Matrix and Resulting Mechanical Properties", *Polymer Composites*, **35**, 1473-1485 (2014).

Directed Research

Doctor of Philosophy Level (Examples of 11 graduated and 3 in progress)

- Javad Makpar, Ph.D., Development of High Modulus Ductile Polymer Nanocomposites, (5/2008)
- Gayathri Sharma, Ph.D., Design and Formation of Low Thermal Expansion Coefficient Polyimides, (Degree granted: 10/2009)
- Pei Li, Ph.D., Characterization of Ionic Liquid Membranes for Desulfurization, (6/2010)
- Hamidreza Hakimelahi, Ph.D., Functional Nanocomposite Network Membrane Materials for CO₂ Recovery (5/2011)
- Wei Zhang, Ph.D., Synthesis and Characterization of Bio-sourced Polycarbonate Nanocomposites, (12/2014)
- Michael Miranda, Ph.D., Characterization of Bio-sourced Oxygen Scavengers in PET Packaging Materials, Joint with Dr. S. Jabarin (Degree expected: 5/2016 Polymer Institute)
- Shahab Zekriardenhami, Ph.D., Effect of Anti-plasticizing additives on Gas Transport Mechanism in PET, Joint with S. Jabarin (Degree expected: 12/2016 Polymer Institute)
- Anup Joshi, Ph.D., Synthesis and characterization of copolyesters of PET with renewably sourced monomers (Degree Expected: 5/2018)