

**Ibrahim Sendijarevic, Ph.D.**  
*Business Development Director*



## **Background**

Dr. Ibrahim Sendijarevic holds a Ph.D. in Chemical Engineering from University of Illinois, Urbana-Champaign and a B.S.E. degree in Chemical Engineering from The University of Michigan, Ann-Arbor. He has co-authored 17 papers in the field of polymers and 3 US patents.

His research interest includes structure-property relationships of highly branched dendritic polymers and the effects of the degree of branching and end-groups functionality on the *inter*-molecular and *intra*-molecular interactions of dendritic molecules. He also has experience in determining the properties of dendritic molecules in blends with linear polymers and in developing applications for dendritic materials as processing additives and surface modifiers. As an associate engineer at Merck & Co. he worked on the scale-up of organic chemistry processes for production of Active Pharmaceutical Ingredients. In this effort he worked on the scale-up efforts of dozens of chemical compounds and amongst other achievements was responsible for the development of a novel impurity rejection method and the development of a novel crystallization process. At Troy Polymers Inc., he works on the commercialization of the in-house technologies and on the development of TPI's scale-up and processing capabilities. He is a frequent reviewer for Journal of American Chemical Science.

## **Research areas and activities**

Author of 17 technical papers and several pending patent applications. He holds a Ph.D. in Chemical Engineering from University of Illinois, Urbana-Champaign and a B.S.E. degree in Chemical Engineering from The University of Michigan, Ann-Arbor. His Ph.D. thesis work focused on the study of structure-property relationships of highly branched dendritic polymers determining the effects of the degree of branching and end-groups functionality on the *inter*-molecular and *intra*-molecular interactions of dendritic molecules. He explored the properties of dendritic molecules in blends with linear polymers and in application of dendritic polymers as processing additives and surface modifiers. As an associate engineer at Merck & Co he worked on the scale-up of organic chemistry processes for

production of Active Pharmaceutical Ingredients. In this effort he worked on the scale-up efforts of dozens of chemical steps and amongst other achievements was responsible for the development of a novel impurity rejection method and the development of a novel crystallization process.

At Troy Polymers Inc., he works on the commercialization of the in-house technologies and on the business development of the company. He is also contributing to the development of TPI's scale-up and processing laboratories. He is a frequent reviewer for Journal of American Chemical Science.

## Honors and Awards

Tau Beta Pi, Honors Engineering Society, 1994, University of Michigan.

Member of Phi Kappa Phi, Honors Society, 1998, University of Illinois.

Ranked in top 5% of Teaching Assistants at University of Illinois in 1998.

Ranked in top 10% of Teaching Assistants at University of Illinois in 1999.

Elected President of the Chemical Engineering Graduate Student Association, 1999-2000.

Best paper award, *The API Polyurethane Conference 2004*, Las Vegas, Nevada, 2004.

Best paper award, *The API Polyurethanes Conference 2005*, Houston, Texas, 2005.

## Selected Publications

Sendijarevic, V., **Sendijarevic, I.**, Mayne, K., Winslow, R.W., Duranceau, C.M., Simon, N.L., and Wheeler, C.S., "Recycling of Polyurethane Foams Recovered from Shredder Residue via Glycolysis Process into Polyurethanes," *Proceedings of SAE 2006 World Congress*, April 3-6, 2006, Detroit, Michigan, Paper No. 2006-01-1579.

**Sendijarevic, I.**, and Sendijarevic, V., "Shape Memory Foams: Applications in Packaging." October 17-19, 2005. *Proceedings of the Polyurethanes Conference 2005*, Sponsored by the Alliance for the Polyurethanes Industry, Houston, Texas, p.p. 502-508

**Sendijarevic, I.**, Sendijarevic, V., Sendijarevic, A., Reimann, K.A., and Bailey, R.E., "Effect of pH and Buffers on Hydrolysis Rate of TDI and PMDI Based Polyureas". October 18-20, **2004**. *Proceedings of the Polyurethanes Conference 2004*, Sponsored by the Alliance for the Polyurethanes Industry, Las Vegas, Nevada, p.p. 274-281.

Vahid Sendijarevic, Aisa Sendijarevic, **Ibrahim Sendijarevic**, Robert E. Bailey, Denis

Pemberton, and Kurt A. Reimann., “Hydrolytic Stability of Toluene Diisocyanate and Polymeric Methylenediphenyl Diisocyanate Based Polyureas under Environmental Conditions.” **2004**. *Environ. Sci. Technol.*, 38, 1066-1072.

Josh A. Orlicki, Jeffrey S. Moore, **Ibrahim Sendijarevic**, Anthony J. McHugh, “The Role of End-Group Functionality on the Surface Segregation Properties of HBPs in Blends with Polystyrene: Application of HBPs as Dewetting Inhibitors”, *Langmuir*; **2002**; 18(25); 9985-9989.

Josh A. Orlicki, Jeffrey S. Moore, Neil O. L Viernes, **Ibrahim Sendijarevic**, Anthony J. McHugh, “Roles of Molecular Architecture and End-Group Functionality on the Surface Properties of Branched Polymers”, *Langmuir*; **2002**; 18(25); 9990-9995.

**Ibrahim Sendijarevic**, Anthony J. McHugh, Josh A. Orlick, Jeffrey S. Moore, “The Role of Alkyl End Groups on the Miscibility of Hyperbranched Polymers with Polyolefins”, *Polym. Eng. Sci*; **2002**.

**Ibrahim Sendijarevic**, Anthony J. McHugh, Larry J. Markoski, and Jeffrey S. Moore, “Eliminating Variations in Elemental Composition in Studies on the Physical Properties of Linear to Hyperbranched Etherimide Copolymers”, *Macromolecules*; **2001**; 34(25); 8811-8813..

**Ibrahim Sendijarevic**, Matthew W. Liberatore, Anthony J. McHugh, Larry J. Markoski, and Jeffrey S. Moore, “The Effect of Branching on the Rheological Properties of Concentrated Solutions of Aromatic Etherimide Copolymers”, *Journal of Rheology.*; **2001**; 45(5); 1245.

Larry J. Markoski, Jeffrey S. Moore, **Ibrahim Sendijarevic** and Anthony J. McHugh, “Effect of Linear Sequence Length on the Properties of Branched Aromatic Etherimide Copolymers”, *Macromolecules*; **2001**; 34(8); 2695-2701.

Scott D. Thompson, Larry J. Markoski, Jeffrey S. Moore, **Ibrahim Sendijarevic**, Anand Lee, and Anthony J. McHugh, “Synthesis and Characterization of Hyperbranched Aromatic Poly(ether imide)s with Varying Degrees of Branching”, *Macromolecules*; **2000**; 33(17); 6412-6415.

**Ibrahim Sendijarevic** and Anthony J. McHugh, “Effects of Molecular Variables and Architecture on the Rheological Behavior of Dendritic Polymers”, *Macromolecules*; **2000**; 33(2); 590-596.

## List of Patents

Sendijarevic, V., Sendijarevic, A., and **Sendijarevic, I.**, “Foam articles,” U.S. Patent No. 7,303,536; December 4, 2007 (to Troy Polymers, Inc.).

Sendijarevic, V., Sendijarevic, A., and **Sendijarevic, I.**, “Foam articles,” U.S. Patent No. 7,276,036; October 2, 2007 (to Troy Polymers, Inc.).

**Sendijarevic, I.**, Sendijarevic, V., “Process for preparing polyols,” U.S. Patent Application No. **20070197668** A1; August 23, 2007 (to Troy Polymers, Inc.).

Sendijarevic, V., Sendijarevic, A., and **Sendijarevic, I.**, “Orthopedic casting articles,” U.S. Patent No. **6,984,216**; January 10, 2006 (to Troy Polymers, Inc.).