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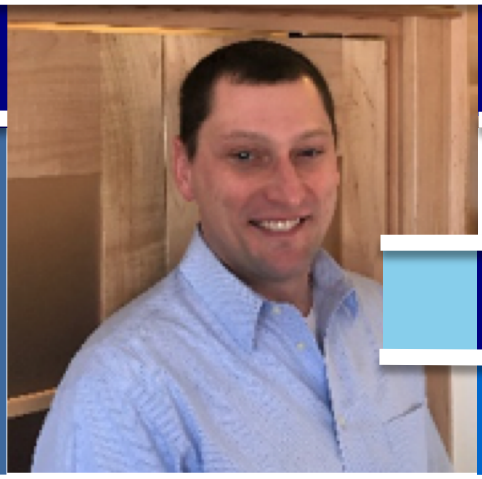
Solvay Seminars in Macromolecular Science & Engineering

Macromolecules Innovation Institute (MII)

VIRGINIA TECH

Dr. Erik Hagberg

"Routes to High Performance Sustainable Materials from Carbohydrates"



Archer Daniels Midland
Technical Director
Process Chemistry and Sustainable Materials

Host: Johan Foster

Abstract: The development of bio-derived, renewably sourced chemicals presents an opportunity to reduce the environmental footprint of the chemical industry and introduce new higher performance materials. Opportunities for sustainable materials can be broken down into two categories: direct replacement chemicals such acrylic acid and adipic acid with well-known large volume uses and new bioadvantaged chemicals such as 2,5-furandicarboxylic acid which bring unique enhanced properties but do not have existing markets. Of these two options, bio-advantaged molecules present the biggest challenge, but have the potential to introduce game-changing platforms for the future. Here we present a number of sustainable material development opportunities including new monomers for polyesters, polyurethanes, and polycarbonates.

Archer Daniels Midland
James R. Randall Research Center
Decatur, IL 62521
Phone: 217-451-2469
E-mail: erik.hagberg@adm.com

Bio: At ADM, Dr. Hagberg is Technical Director, Process Chemistry and Sustainable Materials, where he focuses on developing renewable routes to polymer feedstocks. He received his B.A. in Chemistry from Gustavus Adolphus College in 1998. In 2003, he received his Ph.D. from Iowa State University in Organic Chemistry working for Prof. Valerie Sheares Ashby. He conducted his post-doctoral studies at IBM Almaden Research Center working with Prof. Ken Carter and Dr. James Hedrick. He joined ADM Research in 2007 and currently leads a team responsible for developing novel bio-derived monomers and methods for the production chemical feedstocks from renewable sources.

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TIME: 11:15AM-12:15PM
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