

## Leveraging Multi-Scale Modeling to Drive Innovation in Industry

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For the past 25 years PPG has demonstrated quantifiable business impact by employing multi-scale modeling approaches to direct efforts for the discovery of novel new materials for a variety of commercial applications.

PPG's approach to gain fundamental understanding of materials properties, and to explore promising new design principles to accelerate discovery will be presented. Practical applications of a variety of modeling methods will be discussed, including case studies employing a combination of ab initio electronic structure theory, classical mechanics, coarse-grained and meso-scale methods, and semi-empirical data-driven approaches.

### **Biography:**

Dr. Michael Makowski concurrently has the following roles within PPG Industries; global project and portfolio manager and technology scout, within the specialty coatings and materials business, and platform manager for multi-scale materials modeling within the corporate science and technology (CS&T) function. Over the past 6 years, Mike has also acted as the liaison for PPG's University engagement initiatives and directed the PPG Foundation's philanthropic grant programs for the CS&T function.

Mike has over 30 years of experience in fundamental and applied R&D, and has held various research, development, and management assignments in industry, academia and government labs including; Hercules, BF Goodrich, NASA Langley Research Center, Cytec Industries, and PPG Industries. Mike's technical interests include polymer chemistry, soft matter physics, organic coatings, polymer matrix composites, optical materials, photophysics, and multi-scale modeling.



Mike received his Ph.D. under the direction of Prof. Wayne Mattice (1991), and his M.S. degree under the direction of Prof. Donald McIntyre (1989). Prior to studying at Akron, Mike earned his B.S. in Chemistry at the University of Delaware (1985), while studying as an industry co-op under the direction of Prof. Jimmy Mays at Hercules research center.