

**Richard Braatz**  
**Massachusetts Institute of Technology**

Title: Advanced Manufacturing of Biopharmaceuticals

Abstract: This presentation describes the integrated informatics, process modeling, automation, and control of a platform for the rapid advanced manufacturing of multiple biologic drugs. The project team is designing new biological cell lines and small-scale process equipment, developing real-time sensors, constructing first-principles and data-driven models, and employing feedforward and feedback controls. Although the manufacturing process uses biological cells, the talk does not require any background in biology, and is focused on the design of the manufacturing platform, including dynamic simulation, nonlinear control, and plant-wide operations.