

Materials McElvain Seminar Welcomes

Dr. Pat Brant from ExxonMobil Chemical



Energy, Energy Efficiency, and Sustainability

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12:15 pm

Room 1315

Summary: We will briefly review past, present, and future world energy consumption and the critical role of advances in energy efficiency to help meet energy demands that underpin economic growth. We will then look at how polyolefins - the most successful polymers in the world today - have contributed to energy efficiency and sustainable growth, especially in the areas of transportation and packaging. Of particular importance over the last 15 years are advances in polyolefin performance enabled by metallocene catalysts; advances that continue to this day and will drive further gains for the foreseeable future. Some of these advances – both in process and in product performance – will be highlighted with examples. Next, we will look at the revolution in portable electronics enabled in part by lithium ion batteries (LIB), the role of polyolefin battery separator film (BSF) for LIB success, and the increasing demands on LIB and BSF. In particular, due to their excellent energy and power-to-weight ratios, LIB's have become the focal point for mass production of electric and plug-in electric transportation, as well as the next wave of hybrid electric vehicles. We will conclude with a summary of the technical and economic challenges (R&D opportunities) of these new applications.