

MSE SEMINAR

January 20, 2017

113 McBryde Hall

3:30 – 4:30 PM

Refreshments at 3:00 PM

Dr. Robert E. Schafrik

GE Aviation (Retired)

“Materials for a Non-Steady State World”

ABSTRACT

Since antiquity, human society has greatly benefited from advancements in materials. Expectations for continued improvement in the functionality and quality of products are growing non-linearly in this modern age as the effects of progress are experienced. Since materials are an essential ingredient of all physical products, the challenge for the materials community is to astutely develop and implement improved materials solutions that directly impact the quality of life at a much faster pace than the traditional 10-year timeline. Moreover, societal expectations are that the material solutions produced by an accelerated process will satisfy all requirements demanded by the end product. Computational modeling has been a major tool in facilitating more rapid materials development. However, modeling alone is not sufficient to achieve the faster incorporation of new materials. Experience with conducting successful accelerated materials developments indicates that three other elements are essential: i) forward-looking materials strategy, ii) innovative management of materials development, and iii) formation of high-performance development teams. Challenges remain to make faster materials development a routine option versus an exceptional one. The overarching perspective is that an enterprise solution is required for accelerated materials development.

BIOSKETCH

Robert E. Schafrik, Sr retired from GE Aviation in April 2014 after serving for 17 years as general manager of Materials and Process Engineering. This department develops and qualifies the materials used in GE's aero-engines, and their land and marine derivatives. Prior to GE, for seven years he was staff director for the National Materials Advisory Board at the National Research Council (NRC). He served in the U.S. Air Force for 20 years in a variety of R&D and advanced aerospace system acquisition capacities. After retiring from the Air Force, Bob was vice president of research and development for Technology Assessment and Transfer, Inc. for three years.

Bob chaired the National Research Council's National Materials and Manufacturing Board 2012-2015. He is a Fellow of ASM Intl and a member of the National Academy of Engineering. He received ASM International's William Hunt Eisenman Award and GE Corporate's Edison Award. In 2016 he was elected to GE Aviation Propulsion Hall of Fame. Bob has a Ph.D. in metallurgical engineering from Ohio State University, a M.S. in Information Systems from George Mason University, a M.S. in Aerospace Engineering from the Air Force Institute of Technology, and a B.S. in Metallurgy from Case-Western Reserve University.