



College of Engineering  
Department of  
Mechanical & Industrial Engineering

## The Sidney E. Fuchs Seminar Series

3:30-4:30pm, Friday, October 26, 2012  
Frank H. Walk Design Presentation Room



### Energy, Energy Storage, and Organic Synthesis: A Unique Scientific Interdisciplinary Approach, Part II

by **David R. Carver, Ph.D.\***

Chief Scientist, Carver Scientific, Inc.

Energy storage has been an area of electricity and electronics that has needed improvement for many years. Increasing both energy density and simultaneously decreasing cost per unit energy stored has been a pressing goal of our nation's scientific talent. Stepping back from traditional lines of thought in this area and readdressing fundamental approaches to the design of energy generators and energy storage components allowed the incorporation of the newest advancements from other scientific fields to direct the design of such devices. In the case of our research with traditional electrostatic capacitors, we have incorporated discovery of certain formulations of organic compounds that are able to maintain their permittivity when exposed to very high e-fields. Discoveries of this type are derived from the fundamental teachings that are part of the field of Organic Synthesis, a field that has rarely been applied to electrical component manufacture. These advancements have led to substantially greater energy densities for electrical storage and substantially reduced costs for these electrical components. Spin-off projects and products derived from this project offer many opportunities for advancement in this and other fields of endeavor.

\* Dr. Carver is the Company founder and inventor of the polymer technology to be commercialized by Carver Scientific. He serves as the Chief Scientist, leads all company research & development and also serves as a director of the Company. Dr. Carver received his Ph.D. in Chemistry from Virginia Tech in 1979 and was a National Institute of Health Postdoctoral Fellow at Colorado State University (1979 to 1981). He is the holder of over 18 patents in the areas of advanced energy technologies, organic synthesis, and analytical instrumentation. Dr. Carver is recognized as an innovator of novel Chemistry for alternative energy technologies and pharmaceutical development. He previously founded several successful corporations which, under his direction, invented, developed, and commercialized a diverse and complex set of core technologies with similar risks and complexity.