Report for Topical Lunch: Friday May 12 from 12-1:15 on "New Technologies for the Capture and Utilization of Carbon Dioxide in Commercializable Products."

Abstract:
Chemical fixation of carbon dioxide (CO2) is a central topic in modern environmental science, as CO2 has been implicated as a major contributor to climate change while potentially representing an abundant, clean, and cost-efficient carbon source. The ability to develop new and practical transformations of CO2 into value-added products using sustainable energy resources would be of broad interest. In this context, Cornell researchers have developed various innovative approaches to solve the challenging research problem of CO2 sequestration and utilization. These new technologies include carbon capture with rationally designed nanocomposite sorbents, molecularly catalyzed copolymerization of CO2 and epoxide for polycarbonate synthesis, and photo- and electrocatalysis of CO2-to-fuels conversion using nanostructured inorganic materials. Another interesting research direction is to design and engineer novel reactors to facilitate CO2 capture and utilization. Many of these processes have been or will be commercialized and applied in industrial applications to promote our goal of building a sustainable future. Our goals in this topical lunch are to synergize existing research, inspire new research and facilitate the development of technologies that make money while solving the carbon dioxide problem.

Each research group presented very briefly 1-2 slide describing their own going work, bottlenecks and/or opportunities for collaboration. The following list of faculty/staff attended the meeting: Song Lin and Natalie Mahowald (co-chairs); Lynden Archer, Paulette Clancy, Geoff Coates, Frank DiSalvo, David Erickson, Tobias Hanrath, Mike Hoffman, Graham Kerlick, David Lodge, Mark Milstein, Abe Stroock, Ying Sun, and Dominic Wolf.

Overall, the meeting involved a good exchange of information about current ongoing efforts, as well as a potential conference on related topics. We hope that the topical lunch catalyzed future interactions among researchers.