

Chemical Physics for Sustainable Energy and Materials

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The mission of the National Renewable Energy Laboratory is to develop the science and technology for a sustainable society and move it into the marketplace to replace currently unsustainable industrial approaches. One part of that effort is the development of a bio-economy in which a carbon-neutral economy that utilizes biomass as a source of energy and feedstocks for advanced fuels, chemicals, and materials. Our group of computational chemists, physicists, and biologists works with teams of experimentalists and engineers to understand the chemistry and physics of biomass and to design economically viable approaches to conversion to products. We use a full spectrum of methods from quantum treatments of enzymatic and catalytic reactions to particle dynamics of wood chips and grasses in feed hoppers. Our simulations use many physical approaches including statistical mechanics, chemical and heat transfer, fluid mechanics, and more. I will present some of our work on enzyme reactions, plant cell wall chemistry and physics, multiscale modeling, and a new research direction of designing renewable polymers.

Date: Wed, Oct. 2, 2019

Time: 4:30-5:30 pm

Location: 208 Clark Hall

Students, meet the speaker over
coffee and cookies in the Bennett
Conference room at 3:30 pm