

YSU Chemistry Seminar Series 2017-2018

Upcoming Seminar

Friday: 2/23/2018 3PM

Room 3022 Ward Beecher Hall

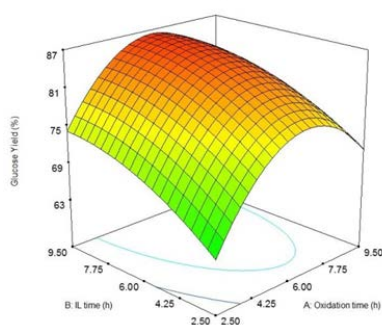
Refreshments Provided

Optimization of a coupled low temperature oxidative and ionic liquid pretreatment of lignocellulosic biomass

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An integrated pretreatment strategy consisting of a room temperature alkaline oxidation step coupled with ionic liquid (IL) incubation enables effective lignocellulosic biomass pretreatment at low temperatures. The integrated strategy results in high hydrolysis yields of biomass sugars at a low enzyme loading. The optimal treatment parameters for each step are inseparably linked due to progressive physiochemical changes in the biomass substrates as they move through the processing scheme. A central composite design was formulated with an experimental design consisting of four independent variables and three responses (dependent variables). Independent variables include: (i) oxidation time, (ii) IL incubation time, (iii) IL incubation temperature, and (iv) biomass solid loading for the IL incubation step. The three dependent variables (responses) are theoretical yields of: (i) glucose, (ii) xylose, and (iii) total sugars. Predictive strategies can be developed to optimize pretreatment with the aim of *maximizing glucose, xylose, or total sugar yields* from enzyme hydrolysis.