数学与系统科学研究院学术报告

报告题目： Biofuel Technology and Its Environmental Consequence: A Systems Analysis

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摘要:

Although being critical to provide energy and mobility essential to our society and economy, current practices in transportation fuel production are far from sustainable. Biofuels, as the main alternatives to petroleum based fuels, have been receiving increasing attention. However, expanding biofuel (e.g. corn or cellulosic ethanol and biodiesel) production may lead to serious environmental consequences including biodiversity loss, landscape change, soil erosion, and water resource degradation and depletion. Transportation fuels, either petroleum based, or alternatives such as biofuels, have intensive material and energy exchange with the surrounding industrial and ecological systems, thus directly or indirectly impact the environment over their entire life cycles. Therefore, the environmental sustainability of biofuel technologies can only be evaluated holistically using systems approaches, such as Life Cycle Assessment (LCA). In this presentation, applying of LCA methodology to a variety of biofuel technologies is reviewed, and challenges facing the development of LCA models for evaluating the environmental sustainability of biofuels are discussed.

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