学术报告

题 目: **Electrochemical exploitation of biomass**

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时 间: 4 月 28 日（周二）下午 3:00

地 点: 卢嘉锡楼报告厅（202）

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固体表面物理化学国家重点实验室
化学化工学院
4 月 27 日

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Abstract:

The selective conversion/production of chemicals from renewable resources with contemporaneous production of energy is perhaps one of the most desirable targets in sustainable chemistry. The realization of such processes will provide energy with no overall CO_2 emission and at the same time lead to the production of industrially relevant feedstocks. Indeed, starting from biomass, a large variety of products such as aldehydes, ketones and carboxylic acids can be obtained. Recent results have shown that direct fuel cells can be effectively employed to convert alcohols into various oxygenates, providing at the same time good power densities, exploiting the ability of certain anode electrocatalysts to bring about the partial oxidation of the anolyte with high selectivity and fast kinetics. Biomass derived products have also been employed as sacrificial agents in electrolysis, avoiding oxygen evolution reaction and leading to cogeneration of hydrogen and valuable chemicals. This approach has resulted in a net energy savings for hydrogen production as compared to conventional electrolytic water splitting.

The present lecture will describe the state of the art and perspective of the electrochemical exploitation of biomass derived products devoting special emphasis to the following aspects:

1) The importance of electrochemical conversion of biomass;
2) Material issues and electrode and catalyst fabrication;
3) Electrochemical kinetics and selectivity issues;
4) Basic concepts for the energy life cycle analysis of described process;