KEMIJSKI INŠTITUT

Vabilo na Preglov kolokvij / Invitation to the Pregl colloquium

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Velika predavalnica Kemijskega inštituta /
Great Lecture Hall, National Institute of Chemistry;
Hajdrihova 19, Ljubljana

Catalysis for Fuels and Chemicals

Reliable and affordably energy is a cornerstone of modern societies but concerns about emissions of CO_2 and related climate change are growing. The recent Climate Conference in Paris has led to broad agreement to restrict world temperature increase to 2 °C which translates into a maximum allowable 'carbon budget' of emissions of CO_2 for the coming decades. For transportation fuels we have estimated that for the coming 20 years the required reduction of CO_2 emissions will be contributed for 75% by more efficient usage of fossil energy and for 25% by renewable energy (wind and solar combined with electrification).

Catalysis is at the heart of new and improved processes to deliver fuels and chemicals with a lower carbon footprint. In this talk we address the growing role of processes based on synthesis gas, a mixture of CO and+ H_2. Synthesis gas can be produced from any carbon-containing feedstock, even from CO_2 if renewable hydrogen is available. We focus on results for conversion of synthesis gas to ultra-clean diesel and to chemicals such as lower olefins. Hydrocracking of n-alkanes using bi-functional Pt/alumina/zeolite-Y catalyst will also be presented. In all these examples effects at the nanoscale play a key role to arrive at improved catalyst activity, selectivity and stability.

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Vljudno vabljeni / Kindly invited