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v Ljubljani

Fakulteta *za kemijo*
in kemijsko tehnologijo

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*VABILO NA PREDAVANJE
V OKVIRU DOKTORSKEGA ŠTUDIJA
KEMIJSKE ZNANOSTI*

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z naslovom:

**Green Catalysis and Sustainable
Development : The Ruthenium in Action**

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v predavalnici 1 v 1. nadstropju Fakultete
za kemijo in kemijsko tehnologijo, Večna pot 113

Vljudno vabljeni!

Povzetek:

Molecular-ligand-Metal Catalysts allow the selective transformations of a variety of simple and non toxic substrates under mild conditions, low energy with atom economy. Some of the catalytic processes can

- be performed in non toxic solvents such as water and
- be applied to give added value to renewable molecules or
- transform plant molecules into materials and polymers.

Ruthenium catalysts which are easy to make, stable in air and often in water, and cheap are in the heart of these clean and mild processes.

Three examples illustrating our research in catalysis will be presented.

Ruthenium (Cp*Ru) activation of alkynes for selective C-O and C-C bondformation: From ruthenium-vinylidenes to alkylidene species, via alkyne oxidative addition or carbene precursors.

Selective Syntheses of functional dienes and bicyclic products from simple alkynes will be presented.

Alkene metathesis alkylidene-ruthenium catalysts are key promotors for selective transformations of terpenes for Alkylidene-Ruthenium Cascade catalyses : alkene metathesis/hydrogenation for biomass transformations into polyamides.

Ruthenium(II) activation of C-H bonds allow C-C bond cross couplings in water : Rennes has established the mechanism of C-H bond activation by deprotonation with Ru(II) and carboxylate partners. Many applications were discovered for catalytic synthesis of polyfunctional molecules, polyfunctional alkenes and alkylation of phosphine oxides as precursors of new functional phosphine ligands.