

Česká společnost chemická, pobočka Brno

Vás zve na přednášky, která se konají v místnosti 132, 1.NP, budova A11, Kamenice 5, Přírodovědecká fakulty Masarykovy univerzity, Brno

ve čtvrtek 2. května 2013 v 14:00 hod.

své příspěvky přednesou

DOC. JANA ROITHOVÁ

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Mass spectrometry in organic chemistry: More than just a classical tool

The combination of electrospray ionization and mass spectrometry is often used for investigation of reaction mixtures. In favourable cases, the reactive intermediates can be transferred to the gas phase and their uni- or bimolecular reactivity can be studied. Infrared multiphoton dissociation (IRMPD) spectroscopy allows obtaining infrared spectra for the mass-selected ions and hence the elucidation of the ion structures. This approach can bring a new insight into many reactions proceeding via ionic intermediates. The lecture will be devoted to the presentation of the potentials of the gas-phase methods and their application to several organometallic reactions.

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Base-modified nucleosides and nucleotides as novel cytostatics and building blocks for polymerase synthesis of modified DNA

Novel methodologies of synthesis of modified nucleobases, nucleosides, nucleotides and oligonucleotides have been developed largely using modern organometal-catalyzed reactions (cross-couplings, C-H activations, etc.). An efficient two-step methodology of construction of functionalized nucleic acids was developed by a novel chemo-enzymatic approach using aqueous-phase cross-coupling reactions of nucleotides followed by incorporation by DNA polymerase. The methods are applied in the synthesis of derivatives for biological activity screening (two novel types of nucleoside cytostatics will be presented) and the use of functionalized oligonucleotide probes for electrochemical or fluorescent detection of DNA, for DNA bioconjugation or regulation of protein binding.