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POZVÁNKA
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Radiation Damage to Specific DNA-Protein Complexes

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Binding of proteins to their cognate DNA modulates yields and locations of radiation damage of both partners. Theoretical simulation can be used to predict yields and distributions of radiation damage in such cellular targets at the molecular level. The calculations can provide an assessment of sequence-, structure- and ligand-dependent modulation of damages within DNA (strand breaks and base damages), proteins (peptide chain breaks and modified amino-acids side chains) and their complexes. The theoretical model RADAMOL based on Monte Carlo technique takes into account both the molecular structure of DNA and proteins and the nucleotides and amino-acids reactivity towards $OH^{\cdot}$, eaq- and $H^{\cdot}$ radical species. The model will be described and applied to DNA-protein complexes involved in the regulation of gene expression, in the hormone signal transduction or in the repair of oxidative lesions of DNA. The predicted DNA damage patterns are consistent with the experimentally observed distributions of lesions within the partners of the complex. The modulation of damage along the molecules will be discussed in terms of the mutual protection of the partners within the complexes and of their binding-induced conformational changes.

Seminář se bude konat v úterý 29. listopadu 2011 ve 14 hodin
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Ing. František Krejčí tajemník semináře	Ing. Stanislav Pospíšil, DrSc. ředitel	Doc. Ing. Carlos Granja, Ph.D. předseda NPSS, ČS IEEE