



KEMIJSKI INŠTITUT

Vabilo na Forum40 / Invitation to the Forum40

dr. Vojč Kocman

D15, Slovenian NMR Centre

Četrtek / Thursday, 29.3.2018 ob / at 13:00

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

NMR structural studies of noncanonical DNA folds

When DNA is involved in processes such as replication and transcription, its double helical structure is partially unwound into two strands. Switching to single strands under certain conditions leads to formation of higher-order DNA structures that can interfere or even stop replication possibly resulting in harmful mutations. Two well established families of higher-order tetrahelical DNA structures called G-quadruplexes and i-motifs are formed by guanine- and cytosine-rich oligonucleotides, respectively. I will show how we discovered a new tetrahelical structural family which we named AGCGA-quadruplexes and go into details how we determined high-resolution structures of some AGCGA-quadruplexes, and what challenges we routinely face, with the use of NMR spectroscopy. Additionally, I will show how we used 2D NOESY spectroscopy to quickly identify whole structural elements and how we were able to get crucial information about different pre-folded states.



Vljudno vabljeni / Kindly invited