

***New modalities of electroporation for drug and gene delivery: MHz bursts versus contactless high magnetic fields***

*prof. dr. Vitalij Novickij is the Director of Institute of High Magnetic Fields (Vilnius TECH) and Head of the Department of Immunology (Centre for Innovative Medicine)*

Electroporation is commonly used in biomedical applications both for drug and gene delivery. When high intensity electric fields are applied, the polarization of cell membrane occurs, leading to the formation of hydrophilic pores allowing controlled intracellular delivery of exogeneous molecules. The talk will focus the recent two new modalities of electroporation for drug and gene delivery. One is based on extremely high-power electromagnetic field pulses, which enable contactless treatment. Another one is based on high frequency nanosecond electric field bursts, which result in residual transmembrane potential accumulation significantly potentiating intracellular delivery of various molecules.