

## PULSE ELECTROLYSIS OF URANIUM IN MOLTEN FLUORIDE SALTS

Lórant Szatmáry, Martin Straka, František Lisý

Department of Fluorine Chemistry, Nuclear Research Institute Řež, Czech Republic

### *Abstract*

Knowledge of basic electrochemistry of uranium and study of its electrodeposition in molten salts is important for pyrochemical concepts of spent nuclear fuel reprocessing including “online” reprocessing concept for Molten Salt Reactor (MSR). The electrodepositions of uranium in molten fluoride salts (LiF-NaF-KF, LiF-CaF<sub>2</sub>) were carried out under current pulses in the melt. Nickel working electrodes were used and alloying effects were observed. Compared to potentiostatic control of electrolysis, the deposit seems to be more compact, with significantly lower amount of carrier melt in it. The deposits were characterized by XRD and SEM-EDX methods. However, proper analysis with differentiation of several forms of the uranium was not possible and therefore it was not possible to make quantitative conclusions.