

NEUTRON BURSTS AT NUCLEAR ACCIDENT AT A FACTORY IN TOKAI-MURA (1999)

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The kinetic characteristics of the nuclear incident due to ignition of self-sustaining nuclear chain reaction (SCR) in uranyl nitrate solution were investigated. It was shown that the SCR kinetics has an oscillating form. It was shown that the mechanism of SCR self-damping connected with the decrease of a solution density due to formation of the radiolytic gas bubbles along the tracks of fission fragments. It has been shown also that the subsequent SCR ignition occurs due to solution cooling and leakage of the radiolytic gas. The power of the first SCR pulse and the time between the subsequent bursts were estimated.