

# Fine Reactivity Control at Reactor ALLEGRO – Primary Proposal

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**Abstract.** The article describes a new concept of reactivity control in nuclear reactor ALLEGRO by steel half-cylinders, that regulate neutron leaked in radial direction. Their principle of operation, impact on reactivity control and resulting efficiency of control rods at 4 points of the core cycle are reviewed. Two core compositions were analysed by the code SERPENT. First core composition consists of UOX fuel and 6 experimental carbide fuel assemblies and is surrounded by two rows of half-cylinders. Second core composition with the same half-cylinder device consists of mixed carbide fuel with carbide cladding.