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CORE-OPTIMIZATION OF RITM-200 REACTOR FUEL CONSIDERING THORIUM FUEL CYCLE

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For a variety of reasons, Russians begun the research and development of a range of small power reactors from the late 1950's. After about 30 years, the focus changed to the provision of electricity and district heating to remote and hard-to reach areas. The multipurpose and co-generational activities of these floating nuclear power plants (FNPP) have generated enormous attention. An essential parameter that justifies the interest in nuclear power reactors is the duration of the fuel campaign. Floating nuclear power plants (FNPP) have proven to be a solution to bridging the developmental gap between urban and remote areas in terms of providing electricity and district heating. This article seeks to investigate the core-optimization of the reactor RITM-200. Focus is placed on Th - U fuel cycle in all the calculations. The spectra of neutron flux density of the reactor RITM-200 were analyzed for (Th232 + U235)O2 and (Th232 + U233)O2 dispersed fuel. The fuel lifetime was then estimated with further studies of the dependency of fuel lifetime on the outer fuel element diameter of the two dispersed fuel compositions.

Primary author: Mr ALHASSAN, Samiru (National Research Tomsk Polytechnic University)

Co-authors: Prof. NESTEROV , Vladimir Nikolayevich (National Research Tomsk Polytechnic University); Mr BELIAVSKII, Sergey (National Research Tomsk Polytechnic University)

Presenter: Mr ALHASSAN, Samiru (National Research Tomsk Polytechnic University)

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