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## TRANSMUTATION OF TECHNETIUM INTO STABLE RUTHENIUM IN HIGH FLUX CONCEPTUAL RESEARCH REACTOR

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### ABSTRACT

The effectiveness of transmutation for the long lived fission product technetium-99 in high flux research reactor, considering its large capture cross section in thermal and epithermal region is evaluated. The calculation of Ruthenium concentration evolution under irradiation was performed using ChainSolver 2.20 code. The approximation used for the transmutation calculation is the assumption that the influence of change in irradiated materials structures on the reactor operator mode characteristics is insignificant. The results on Technetium transmutation in high flux research reactor suggested an effective use of this kind of research reactors. The evaluation brings a new concept of multi-recycle Technetium transmutation using HFR<sub>TRAN</sub> (High Flux Research Reactor for Transmutation).