

FLUX AND POWER DISTRIBUTION ANALYSIS FOR HTR-10 REACTOR CORE LOADED WITH URANIUM OXIDE

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Abstract

MCNP6 computer code is used to model HTR-10 core reactor. UO₂ fuel is used. We determined the Flux and power distribution for normal core loaded by UO₂ fuel pebbles of the reference HTR-10 reactor. The results show an analogue between the thermal flux distribution and the power distribution, where the thermal neutrons are responsible on causing the fission, and hence production. The thermal flux has its maximum value at the core center and decreases as we move away from the center. The thermal flux is increased near the reflector because the neutron reflector scatters back (or reflects) into the core many neutrons that would otherwise escape. The neutrons reflected back into the core are available for chain reaction (reflector savings).