عنوان مقاله:

Comparison of energy savings in fuel rods BNPP-I and BNPP-II in intermediate energies using DRAGON and MCNP codes

محل انتشار:

پنجمین کنفرانس بین المللی مدیریت، بهینه سازی و توسعه زیرساخت های انرژی (سال: 1400)

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خلاصه مقاله:

One of the most important effects at the core of nuclear reactors, which manifests itself in intermediate energies more than other energies, is the resonance self-shielding effect. Which is divided into two parts: energy self- shielding and spatial self- shielding. The importance of calculations of this effect is due to changes in neutron flux and effective multiplication factor. The use of up-to-date methods of self-shielding calculations and its effect on the calculation of reactor neutron parameters will be one of the first goals of this research. The main difference between BNPP-II fuel (TVS-۲M type) and BNPP-I fuel (TVS type), which of course plays a major role in self-shielding calculations, is the use of gadlenium oxide in some fuel rods, which dominates the role. Energy self- shielding has become the role of spatial self- shielding. The next goalof this research is to investigate the effects of the presence of this type of fuel rod in the core of the reactor. These calculations will be performed in the framework of Dragon deterministic code and MCNP probabilistic code and through three different methods of resonance self-shielding (Subgroup, Stamm'ler and Tone .method). Finally, we will examine which structure can perform best in resonance self-shielding

کلمات کلیدی:

Bushehr nuclear power plant, DRAGON code, MCNP code, self-shielding