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反应堆工程

复杂几何燃料组件的共振自屏计算

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摘要 共振参数计算是反应堆堆芯设计计算中的重要内容，传统的共振计算模型只适应于简单几何计算。本工作应用A. Hebert提出的子群共振自屏计算模型研制了复杂几何燃料组件的共振自屏计算程序。该程序能处理含有两种共振核素的复杂几何下的共振自屏。对一系列问题的数值校验计算表明，该模型在低富集度时具有较好的计算精度。

关键词 共振；子群；复杂几何；自屏

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Resonance Self-shielding Calculation for Complicated Fuel

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Abstract Resonance self-shielding calculation is a very important part of the reactor core design calculation. The traditional self-shielding model can only simulate the simple geometry. The subgroup self-shielding model developed by A. Hebert was utilized to develop a self-shielding calculation code. It can treat complicated geometry with two resonant isotopes contained in fuel region. Numerical results presented for many problems show that this model can get high accurate results when the fuel enrichment is low.

Key words resonance _ subgroup _ complicated geometry _ self-shielding

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