



**نموذج (I) : بيانات بحث مقدم للترقية
البحث الرابع – مشترك**

1- عنوان البحث

عنوان البحث
Study on criticality and reactivity coefficients of VVER-1200 reactor

2- البيانات الخاصة بالنشر

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5- ملخص البحث باللغة الإنجليزية

The presence of burnable absorbers play an important role in the safety of nuclear reactors. So, seeking their influences on the reactor core behaviour is a crucial issue in both reactor core design and operation. Therefore, the aim of the present work is to study the effect of the gadolinium oxide burnable absorbers on one of the significant safety parameters of VVER-1200/V392M core which is the neutron flux distribution. A full-scale three-dimensional model of the VVER-1200/V392M core was performed using MCNP5/MCNPX transport code with ENDF/B-VII.0 nuclear data library. The calculations were performed in the normal operation state for the first fuel cycle. Besides the neutron flux in both radial and axial distributions, the comparison between the fuel assemblies contained gadolinium oxide and that without gadolinium oxide is also discussed. Also, the effect of gadolinium oxide on the produced major actinides is investigated.