

# TEST OF THE NEW TRANSURANUS VERSION V1M2J11 AGAINST RUSSIAN EXPERIMENTAL DATA

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## ABSTRACT

In order to ensure the safe and economic operation of the nuclear fuel rods, fuel performance codes have to predict accurately their life time and behaviour in both normal and off normal conditions. For commercial WWER's, operated in the East European countries, one of the most powerful computer codes for studying standard reactor fuel behavior is TRANSURANUS, developed by prof. K.Lassmann and collaborators [1,2] to high level of reliability at the European Commission Institute for Transuranium Elements in Karlsruhe, Germany. The results of the WWER reactor standard fuel behavior simulation by means of the new version of TRANSURANUS code – v1m2j11 are presented and compared with Russian experiments. The resent extended TRANSURANUS version comprises new model for the kinetics of grain growth in both UO<sub>2</sub> and MOX fuels and models for the production, transport and release of He. The test work has been performed using experimental data of nuclear fuel irradiated in WWER-440 and WWER-1000 reactors - Kola-3 (FA-198 and FA-222), Novovoronezh-5 (FA-ED4108) and Zaporoshye-1 (FA-E0325) experiments, distributed by OECD-NEA/IAEA and known as IFPE (International Fuel Performance Experiments) data base [3]. The comparison of the code predictions with the experimental data showed good agreement between calculation and experiment, and the code is fully applicable to the operational practice of NPP's based on WWER-type of nuclear reactors.

**Key words:** Nuclear reactor, WWER fuel, code simulation, TRANSURANUS computer code

## References

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