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**Damping Analysis of Xenon Oscillation in CANDU-6 Reactor
with DUPIC Fuel**

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Abstract

The damping characteristics of the xenon oscillation of a CANDU-6 reactor with DUPIC fuel has been analyzed. In this study, three important harmonic perturbations such as top-to-bottom, side-to-side and front-to-back oscillations were considered. The damping factor has been calculated for each oscillation and compared to that of natural uranium fuel core. The calculation has shown that the damping factor of the DUPIC fuel core is negative and smaller in magnitude than that of natural uranium core. Therefore, the xenon oscillations of the DUPIC core is self-damped as for natural uranium core. Furthermore, this study has also shown that the current zone controller system can damp the xenon oscillation very efficiently.