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**Verification and Application of New Lateral Heat Conduction  
Capability in PLTEMP/ANL Code**

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**ABSTRACT**

The Materials Management and Minimization ( $M^3$ ) Office of the National Nuclear Security Administration (NNSA) is supporting the conversion of fuel from high to low enrichment for research and test reactors including the five US High-Performance Research Reactors (USHPRR) and the European Union High-Flux Reactors (EUHFR). One particular characteristic of these reactors' fuel assemblies is the power peaking located at the edge of the fuel plate where the lateral heat conduction from the fueled width to the unfueled region becomes a dominant heat transfer component. To be able to consider this important effect, a new lateral heat conduction option for the steady-state thermal-hydraulic code PLTEMP/ANL has been developed. The current paper presents the verification and validation using analytical and CFD calculations and the application of this new capability in support of the EU High Flux Reactor (RHF) analysis.