IN-SITU THERMAL CONDUCTIVITY MEASUREMENT OF CERAMICS IN A FAST NEUTRON ENVIRONMENT – L. L. Snead (Oak Ridge National Laboratory), R. Yamada (Japan Atomic Energy Research Institute), K. Noda and Y. Katoh (Kyoto University), S. J. Zinkle, W. S. Eatherly, and A. L. Qualls (Oak Ridge National Laboratory)

Extended Abstract (the full paper will be published in the Journal of Nuclear Materials as Proceedings of the Ninth International Conference on Fusion Reactor Materials, October 10-15, 1999, Colorado Springs, Colorado).

An experimental technique for measuring the in-situ thermal conductivity of ceramic materials in an RB* position of the High Flux Isotope Reactor has been successfully demonstrated. The technique is based on measurement of the temperature drop along the axis of a solid cylinder constrained to one dimensional heat flow. The heat source is the intrinsic gamma heating of the core region of the HFIR. Preliminary results indicated that, as expected, the thermal conductivity of the ceramic materials undergo a rapid reduction in thermal conductivity with irradiation followed by an apparent saturation. Final results will be obtained after a detailed post-irradiation examination of the samples and final analysis of the core gamma heating.