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Sensitivity of Energy Deposition to Reactor Parameters
in Rod Ejection Accident

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ABSTRACT

This study quantifies the sensitivity of energy deposition to the delayed neutron fraction, reactivity insertion, and fuel specific heat for rod ejection accident simulated by PARCS code which is a 3-dimensional core kinetics code. The results show that the sensitivity of fuel energy deposition to delayed neutron fraction and reactivity insertion strongly depends on the reactivity of the ejected control rod. At high rod worth or small delayed neutron fraction, its sensitivity is low, but as the reactivity insertion decreases to the point where the excursion is just prompt critical, the sensitivity becomes very large. The sensitivity to specific heat is independent of the ejected rod worth.