

Abstract Submitted
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Comparison of actinide transmutation using deep burn in an inert matrix fuel and recycle in a low conversion fast burner reactor¹ MARK DEINERT, TU Austin, GEOFF RECKTENWALD, Cornell University — Because of their non-fertile matrices, inert matrix fuels (IMF) could allow light-water reactors to achieve a significant burn down of the actinides that they themselves produce. However, the extent to which this is possible is not yet fully understood and must be compared to the other future options for actinide transmutation. We consider a ZrO₂ based IMF with a moderate transuranic loading and compare the endpoint actinide inventories that would result from recycling actinides from spent UOX fuel using IMF with a deep burn, and continuous recycle in a low conversion ratio fast burner reactor, both over a 100 year time frame. The results show that for IMF with a burnup beyond 750 MWd/kgIHM the residual actinide inventories would be similar.

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Mark Deinert
TU Austin

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