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**Neutronic Model of a Mirror Based Fusion-Fission Hybrid for the Incineration of Spent Nuclear Fuel and with Potential for Energy Amplification** KLAUS NOACK, Uppsala Un., V.E. MOISEENKO, NSC Kharkiv Inst. Phys. & Tech., O. AGREN, A. HAGNESTALL, Uppsala Un. — In the last decade the Georgia Institute of Technology (Georgia Tech) published several design concepts of tokamak based fusion-fission hybrids which use solid fuels consisting of transuranic elements of the spent nuclear fuel from Light-Water-Reactors. The objectives of the hybrids are the incineration of the transuranic elements and an additional net energy production under the condition of tritium self-sufficiency. The present paper presents a preliminary scientific design of the blanket of a mirror based hybrid which was derived from the results of Monte Carlo neutron transport calculations. The main operation parameters of two hybrid options were specified. One is the analog to Georgia Techs first version of a “fusion transmutation of waste reactor” (FTWR) and the other is a possible near-term option which requires minimal fusion power. The latter version shows considerably better performance parameters.

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