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Possible Angular Momentum Dependence of Dissipation in Nuclear Fission[1] WEI YE, JAN TOKE, W. UDO SCHROEDER, University of Rochester, UR NUCLEAR SCIENCE RESEARCH GROUP TEAM — A comparative analysis of the pre-scission neutron multiplicities observed in a new experiment [1] and one reported earlier [2] suggests that, besides known deformation [3] and temperature [4] dependencies, nuclear dissipation in fission may have an angular momentum dependence. The analysis based on a Langevin equation coupled with a statistical decay model [3] considers angular momentum effects on fission dynamics. Pre-saddle reduced dissipation coefficients of $\beta = 2 \times 10^{21} s^{-1}$ and $3 \times 10^{21} s^{-1}$ have been extracted for the matched reactions ^{16}O + ^{181}Ta and ^{19}F + ^{178}Hf [1],respectively. The difference in the extracted β values is attributed to the difference in the angular momenta contributing to the fission process in the two reactions. Work attempting to derive a quantitative expression for an angular momentum dependence of the dissipation strength is in progress. [1] H.Singh et al., Phys. Rev. C76 (2007) 044610 [2] L.G.Moretto et al., Phys. Rev. Lett. 75 (1995) 4186; Phys. Rev. C54 (1996) 3062 [3] P.Frobrich and I.I.Gontchar, Phys. Rep. 292(1998) 131 [4] P.Paul and M.Thoennessen, Ann. Rev. Part. Sci. 44(1994) 65

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