

Abstract Submitted  
for the APR05 Meeting of  
The American Physical Society

**Explanation of the symmetric fission mode of 258Fm, 260Md and 270Sg** GENEVIEVE MOUZE, CHRISTIAN YTHIER, University of Nice — In the 258Fm case (1), only the fragment pairs 128Sn-130Sn and 126Sn-132Sn have, in spite of a correction for spherical nuclei, a Coulomb barrier smaller than the corresponding energy-releases of 253.794 and 252.295 MeV. The resulting absence of a barrier for the fission of 258Fm into these two pairs explains the enhancement of the fission yield of Sn-fragments of mass 126,128,130 and 132 and thus the f.-w.-h.-m. of only 8 u of the  $A = 129$  peak of the mass distribution. For 257Fm, the appearance of a symmetric mode is due to the small Coulomb barrier of the pair 128Sn-129Sn, having an energy-release of 252.517 MeV. For 270Sg (2), several fragment pairs with neutron numbers 82 have a Coulomb barrier smaller than the corresponding energy-release. This conclusion throws a new light on what can be called a fission barrier of the first kind, where the major role is played by the electrostatic properties of individual binary configurations and not by the lack of activation energy of a primordial dinuclear system. 1 D.C. Hoffman et al., Los Alamos Report LA-UR-77, 2901 (1977). 2 M.G. Itkis, Intern. Nucl. Phys. Conf.Paris, 1998, Abstr. Contrib. Papers, p.579.

Genevieve Mouze  
University of Nice

Date submitted: 19 Jan 2005

Electronic form version 1.4