**The concept of barrier in nuclear fission** GENEVIEVE MOUZE,
CHRISTIAN YTHIER, Université de Nice, 06108 Nice cedex 2, France — An inter-
nal fission barrier can exist in a heavy nucleus if its internal energy, resulting from
its internal dissociation into a dinuclear system, is not great enough for inducing a
rearrangement into fragment pairs. But there exists also an external fission barrier,
which is defined for a fission into a given pair "i". The study of $^{258}$Fm (s.f.) has
shown that $B_c^f$ (i), equal to $B_c$ (i) – $Q_{tot}$ (i), i.e. to the difference between Coulomb
barrier and fission energy of the pair "i", is still negative, after sphericity correction,
for its most energy-rich pairs $^{128}$Sn-$^{130}$Sn and $^{126}$Sn-$^{132}$Sn;this explains the consid-
erable fission yield of $^{258}$Fm at A ~129. For the system $^{235}$U + $n_{th}$, the $B_c^f$ (i)'s are
positive for all possible fragment pairs, since $B_c^f$ (i) is already positive, and equal to
2.73 Mev, for the most energy-rich pair $^{132}$Sn-$^{104}$Mo; but a sphericity correction of
about 3 MeV is necessary for the presence of the tin nucleus: this suggests that the
reported value of 5.80 MeV of the "fission barrier" of $^{235}$U + $n_{th}$ is nothing else but
its smallest external fission barrier, after sphericity correction.

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