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**Above-threshold structures in Cm neutron-induced fission
reaction cross sections**



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The broad quasi-resonance structures in N-even curium target nuclei fission cross sections are interpreted within a statistical model. The structures occur at incident neutron energies above the fission threshold, i.e. in the plateau region. They are well-pronounced in bomb-shot data by Fomushkin et al. (1980,1982) and Moore et al. (1971) for $^{244}\text{Cm}(n,f)$, $^{246}\text{Cm}(n,f)$ and $^{248}\text{Cm}(n,f)$ reactions. These structures are interpreted in terms of double-humped fission barrier model within a convenient statistical theory approach. The total nuclear level density is represented as the factorized contribution of quasi-particle and collective states. We suggest that the intrinsic quasi-particle state densities in fissioning compound nuclei as well as residual nuclei play an essential role. The estimates of single- and three-quasi-particle intrinsic states densities for fissioning nuclei and two-quasiparticle intrinsic states densities for residual nuclei are obtained. The proposed approach is supported by the observation of similar effects in Pu nuclei level densities, manifested in $^{239}\text{Pu}(n,2n)$ reaction cross section (Maslov V.M., 1994). The step-like structure, appearing in this reaction cross sections was interpreted in terms of jump-like excitation of two-quasi-particle states in residual nuclide ^{238}Pu . The estimates of n-quasi-particle state densities obtained within a bose-gas model for different nuclides are fairly consistent.

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