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## Microscopic analysis of fusion hindrance in heavy systems

重い原子核系における融合阻害の微視的解析  
(this talk will be given in English)

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In fusion reactions of heavy systems, it is well known that the fusion hindrance occurs where the fusion probability is strongly hindered around the Coulomb barrier energy, compared with lighter systems. Quasi-fission process is considered to be mostly responsible for this hindrance. Recently, we proposed a method to extract nucleus-nucleus potential and one-body energy dissipation from the relative motion of colliding nuclei to nuclear intrinsic excitations in fusion reactions from time-dependent Hartree-Fock calculations [1,2]. In this talk, we apply this method to fusion reactions of heavy systems, and analyze the property of extracted nucleus-nucleus potential and dissipation. We show that the obtained potentials exhibit a disappearance of a barrier and monotonic increase at short relative distances, which are different from lighter systems. We also analyze energy dissipation for heavy systems and show that origins of fusion hindrance come mainly from a dynamical increase in extracted potentials at short distances.

[1]K. Washiyama and D. Lacroix, Phys.Rev.C 78, 024610 (2008).

[2]K. Washiyama, D. Lacroix, and S. Ayik, Phys.Rev.C 79, 024609 (2009).

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