Contribution ID: **4** Type: **not specified**

Collective Inertial Masses in Nuclear Reactions

Thursday, 9 March 2023 10:20 (30 minutes)

Toward the microscopic theoretical description for large amplitude collective dynamics, we calculate the coefficients of inertial masses for low-energy nuclear reactions. Under the scheme of energy density functional, we apply the adiabatic self-consistent collective coordinate (ASCC) method, as well as the Inglis' cranking formula to calculate the inertias for the translational and the relative motions, in addition to those for the rotational motion. Taking the scattering between two α particles as an example, we investigate the impact of the time-odd components of the mean-field potential on the collective inertial masses. The ASCC method asymptotically reproduces the exact masses for both the relative and translational motions. On the other hand, the cranking formula fails to do so when the time-odd components exist.

Experimental study on nuclear physics

Primary author: Dr WEN, Kai (University of Tsukuba)

Presenter: Dr WEN, Kai (University of Tsukuba)

Session Classification: Session 10