An analysis of the 12C(p,d) reaction at eta'(958) meson production region by microscopic transport model (JAM) YUKO HIGASHI, NATUMI IKENO, HIDEKO NAGAHIRO, SATORU HIRENZAKI, Nara Women's University, HIROYUKI FUJIOKA, Kyoto University, KENTA ITAHASHI, RIKEN Nishina Center, YOSHIKI TANAKA, University of Tokyo — We study theoretically the ^{12}C(p,d) reaction for the formation of the η' mesonic nucleus to optimize the experiments at GSI and FAIR, where the missing mass spectroscopy of the ^{12}C(p,d) reaction is adopted to measure η' meson bound states in ^{11}C. This method was proposed in Ref. [1] and the peak structures are expected in the inclusive spectra of the deuteron in case that the discrete states exist. The semi-exclusive measurements are also considered at FAIR to reduce the background, where protons / charged pions are measured in coincidence with the deuteron. We present the theoretical distributions of the emitted charged particle in the (p,d) reaction. The charged particles produced by the η' absorption are expected to have uniform angular distribution with the specific energy of the absorption process, while those by the background distribute in the forward directions. Thus, we can reduce the background largely by the differences of the charged particle distributions from these processes. We use the microscopic transport model [2] and we report the advantages of the semi-exclusive measurements.

[1] K. Itahashi et al., PTP128, 601(12), H. Nagahiro et al., PRC87, 045201(13).
[2] Y. Nara et al., Phys. Rev. C61, 024901(00).

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