Target effect of fragmentation reactions at intermediate energy
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SASAKI, SHINJI SATO, NIRS — To investigate the production mechanism of
projectile-like fragments (PLF’s) at intermediate energies, the momentum distri-
butions of PLF’s produced from Ar beam at intermediate energy were measured.
The production cross sections were derived by integrating observed momentum dis-
tributions. The present results are useful to design experiments, which will be done
at new RIB facilities. The measurements were performed by using HIMAC facility
at NIRS. The longitudinal and transverse momentum distributions of PLF’s pro-
duced in the reactions with ZP = 18 and ZT = 6 ~ 79 at E/A = 290 MeV were
measured. In the reaction with heavier targets, the transverse momentum distribu-
tion was broader than that measured with lighter targets. This broadening effect
is remarkable for heavier PLF’s (AF > 20) and negligible for lighter ones. This
result implies that the effect of the Coulomb force shrinks caused by the nuclear
force in the case of lighter PLF’s. The target effect was found in the production
cross sections of PLF’s derived from observed momentum distributions as well. The
production mechanism of PLF’s will be discussed based on the present results by
comparing with the theoretical results.

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