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Evolution of fragmentation momentum distributions with mass
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— Parallel momentum distributions of fragmentation products as a function of fragment mass have been used extensively to understand the fragmentation mechanism. Mass dependencies of the perpendicular momentum distributions, however, are much less well-understood. Complete momentum distributions of projectile-like fragments produced in $^{76}\text{Ge}+^9\text{Be}$ and $^{76}\text{Ge}+^{197}\text{Au}$ reactions have been measured using a 130 MeV/nucleon beam. Parallel distributions of all fragments follow established mass systematics, regardless of target species. However, the perpendicular distributions of fragments produced with the ^{197}Au target that are near the projectile mass contain a clear peak near the grazing momentum that diminishes in significance as fragment mass decreases, a deviation from predictions. In addition, proton-pickup fragments were also observed to peak away from zero degrees. The origin of this peak and its systematic variation will be discussed in the context of fragmentation reaction mechanisms.

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