

Abstract Submitted
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Reacceleration of the fragmentation residues in the reactions $^{197}\text{Au}+^{197}\text{Au}/^{27}\text{Al}$ at 0.5 and 1 A GeV VLADIMIR HENZL, NSCL-MSU, GSI-Darmstadt, CHARMS COLLABORATION — We present the results of the first experiments dedicated to the precise measurements of the longitudinal momenta of the projectile fragments in the reactions $^{197}\text{Au}+^{197}\text{Au}$ at 0.5 and 1 A GeV, and $^{197}\text{Au}+^{27}\text{Al}$ at 0.5 A GeV performed with the high-resolution magnetic spectrometer FRS at GSI-Darmstadt. It is observed, that projectile residues with masses above $A_{res} > 150$ produced in very peripheral collisions are decelerated in the reaction and follow the well established Morrissey systematic [1], however the mean velocities of the lighter residues level off, and progressively increase with decreasing mass and even reach a positive value with respect to the original projectile velocity (for $A_{res} < 85$). The observed reacceleration phenomenon and its behavior with respect to the different beam energy and/or different collision geometry thus significantly improves our understanding of the spectator response to the participant blast which has been just recently theoretically predicted [2] and experimentally observed [3].
References: [1] D.J.Morrissey, Phys. Rev. C39, 460 (1989). [2] L.Shi, P.Danielewicz, and R.Lacey, Phys. Rev. C64, 034601 (2001). [3] M.V.Ricciardi et al., Phys. Rev. Lett. 90, 2123021 (2003).

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