Antiproton Yields in p-A collisions at the BNL-AGS.

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Abstract

The competing effects of enhanced production and increased annihilation leading to antiproton yields in A-A collisions have not yet been disentangled and quantified. An understanding of these effects in the context of p-A collisions will help to clarify the situation. To this end, E941 is studying the target and energy dependence of antiproton production in p-A collisions. The in-medium annihilation of antiprotons can be studied by using different targets, while the production energy scaling might illuminate the issue of enhanced production in A-A. To make these calculations, invariant multiplicities for targets of Pb, Cu, Al, and Be at a beam momentum of 18 GeV/c, and of Be at 12 GeV/c will be presented and compared with each other. Comparisons will also be made with other experiments and with RQMD. An estimate of the systematic errors in the measurements will be included in the presentation. In particular, a direct comparison with the A-A data taken by our predecessor experiment, E864, will be made. The antiproton invariant multiplicities shown will cover the kinematic range of $1.2 < y < 2.4$ and $50 < p_T < 350$ MeV/c.