ERRATA

Cluster-Impact Fusion [Phys. Rev. Lett. 63, 1292 (1989)]

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The detection of D-D fusion events when accelerated heavy-water cluster ions impact on deuterated targets, as reported in our Letter, immediately raised questions about the possibility that traces of high velocity beam contaminants (artifacts) could account for the experimental results. Experimental searches for sufficient fluxes of trace contaminants produced what appeared to be negative results [1,2]. These results led us to conclude that energy amplification processes during and after cluster impact were responsible for the observed fusion events. Further searches for direct experimental evidence for artifact contributions have now convinced us that this conclusion is in error. It appears that we have overestimated cluster-impact fusion rates by at least 2 orders of magnitude.

Experiments during the last several months using magnetic deflection of accelerated ion beams coupled with electrostatic deflection of these beams provide experimental evidence that artifacts are primarily responsible for events that have been ascribed to cluster-impact fusion. When ions with mass less than 25 amu were magnetically deflected out of the beam, the fusion event rate was reduced by at least 2 orders of magnitude, whereas electrostatic energy analysis of the beam exiting the magnet showed transmission of roughly 50% of the cluster ion beam. Detailed descriptions of these experiments must await a future publication. We still have no quantitative model for the formation of artifacts and further experiments are in progress to study this problem. Experiments are also in progress with magnetically filtered beams to determine either values or upper limits of cluster-impact fusion rates.

Y. K. Bae, who joined us after publication of our original results (the Letter and Refs. [1,2]) and his independent confirmation of these results [3], made substantial contributions to the experiments reported here.

[1] R. J. Beuhler, Y. Y. Chu, G. Friedlander, L. Friedman, and W. Kunnmann, J. Phys. Chem. **94**, 7665 (1990).

[2] R. J. Beuhler, Y. Y. Chu, G. Friedlander, L. Friedman, J. G. Alessi, V. LoDestro, and J. P. Thomas, Phys. Rev. Lett. **67**, 473 (1991).

[3] Y. K. Bae, D. C. Lorents, and S. E. Young, Phys. Rev. A **44**, R4091 (1991).