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Category Number and Subject: 4.8.0. Target Fabrication Developments

Theory Experiment

Fabrication of Embedded Spheres in Resorcinol Formaldehyde Aerogel for Astrophysical Jet Experiments on OMEGA,* R.R. Paguio, J.F. Hund, B.E. Blue, D.G. Schroen, K.M. Saito, C.A. Frederick, A. Nikroo, R.J. Strauser, *GA*; K. Quan, *UCSD* – Embedded sapphire spheres in a cylindrical resorcinol formaldehyde aerogel targets are required for astrophysical jet studies on OMEGA. Previous work done on fabricating such a target used a 100 μm thick stalk in order to place the ball in the required position. Recent experiments required the stalk to be 1 μm or less, and changed the aerogel density from 100 mg/cc to 300 mg/cc. Targets were successfully fabricated without a supporting stalk by modifying parameters such as gelation time of the aerogel precursor solution, and use of a vacuum holder for the sphere placement. Fabrication of this target was also developed using a spider silk support approximately 100 times thinner than the earlier work on similar targets. Characterization of the ball placement and aerogel was done by radiography. These measurements showed that the ball was accurately placed and the aerogel matrix was not significantly altered.

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