

Abstract Submitted  
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**Molecular dynamics study of shock compression in porous silica glass** KEITH JONES, J. MATTHEW D. LANE, TRACY J. VOGLER, Sandia National Laboratories — The shock response of porous amorphous silica is investigated using classical molecular dynamics, over a range of porosity ranging from fully dense (2.21 g/cc) down to 0.14 g/cc. We observe an enhanced densification in the Hugoniot response at initial porosities above 50%, and the effect increases with increasing porosity. In the lowest initial densities, after an initial compression response, the systems expand with increased pressure. These results show good agreement with experiments. Mechanisms leading to enhanced densification will be explored, which appear to differ from mechanisms observed in similar studies in silicon. Sandia National Laboratories is a multi mission laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.

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