

Abstract Submitted
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Mass distribution and geometry of a crumpled ball¹ ANNE DOMINIQUE CAMBOU, NARAYANAN MENON, UMass, Amherst — We use X-ray CT scanning to resolve in 3-dimensions the conformation of aluminum sheets with diameters $L=7\text{cm}$ to 10cm and thickness $T=25$ microns, crumpled into spheres with diameters $D=1.2\text{cm}$ to 1.5cm . The linear resolution of the reconstructed images is less than 6 microns/voxel. Measurements were made on spheres with average volume fractions, ϕ ranging from 0.06 to 0.11 . The mass is not homogeneously distributed in the volume: when averaged over several samples, the volume fraction $\phi(L/D)$ is found to increase with radius so that the sphere is densest at its surface. The radial dependence of volume fraction appears to be independent of average volume fraction and diameter, D . We also report preliminary measurements of the distribution of curvature in the sphere.

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