

Self-Deployed Space or Planetary Habitats and Extremely Large Structures **Devon Crowe, Physical Sciences, Inc.**

We propose an approach for constructing compact payloads with low mass that can erect very large and strong structures. This technology would enable payloads small enough to launch that can become self-contained orbital habitats, large buildings on planetary surfaces, or other large structures that require significant strength. Our approach uses inflated bubble structures and suspended films which are then made rigid. The mass density of the deployed structures is far below previous technologies such as inflated balloons.

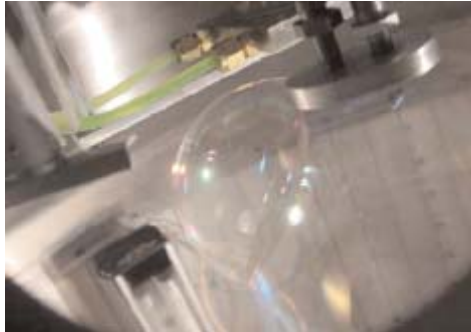


Figure: Physical Sciences, Inc. has created rigid spherical bubbles with either flat or tailored curved surface interfaces between bubbles in contact. They have demonstrated 70-cm rigid bubbles created in a laboratory vacuum.