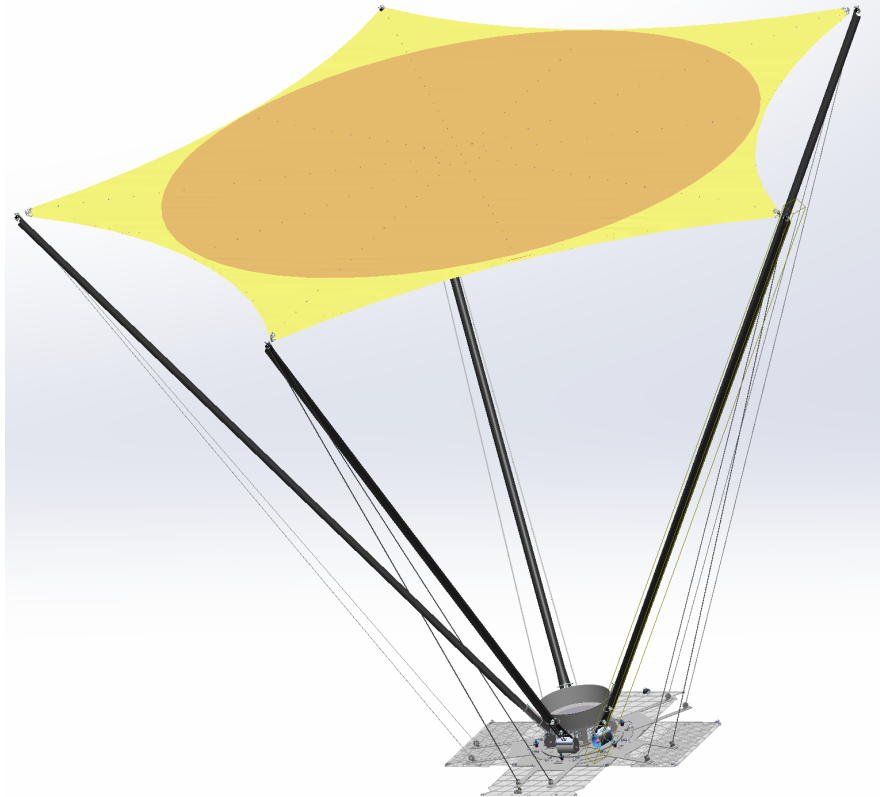


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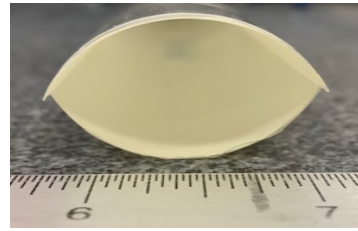
November 10, 2021

MMA Design Secures License for Two Key NASA Boom Technologies

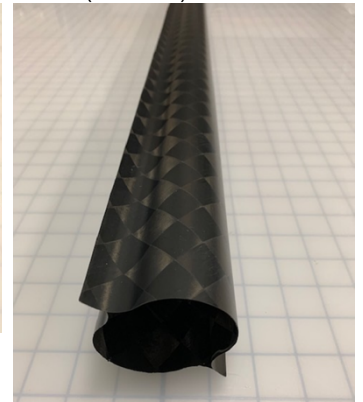
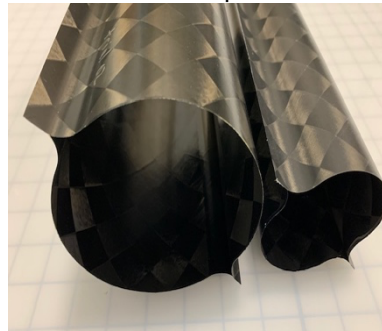


Louisville, CO – MMA Design has recently completed license agreements with NASA on two enabling boom technologies. These technologies will further enhance MMA Design’s rapidly expanding deployable systems offerings including a wide array of antenna systems, solar arrays, and de-orbit devices, as well as deployable tape and truss booms.

The first license grants MMA exclusive use of the SHEAth-based Rollable Lenticular-Shaped and Low-Stiction (SHEARLESS) Composite Boom technology for spaceflight applications. The SHEARLESS composite boom deploys to a final cross-section shape that is lenticular but is flexible enough to allow elastic flattening and subsequent coiling around a cylindrical reel/drum. The torsional stiffness of the deployed structure is two orders of magnitude larger than that of the individual tape-spring components alone. The innovation enables a lightweight structure that can be stowed on a reel without appreciable shear stresses developing in its constitutive composite parts. MMA has already begun efforts to incorporate the SHEARLESS boom into a 1 square meter low frequency antenna that stows small enough to fly on a CubeSat mission.



The second license offers similar exclusive rights to the Bistable Collapsible Tubular Mast (Bi-CTM) boom, offers compact storage on a cylindrical drum that deploys a composite material boom with a closed tubular cross section that has unmatched bending and torsional stiffness for the mass of the thin-shell structure. The Bi-CTM is also scalable for long booms given the load carrying capacity. MMA has been developing Collapsible Tubular Mast products over the past 2 years and is excited to add the Bistable technology to that portfolio. Bistable tapes and booms enable MMA's Tape Deployer Assemblies (TDA) to be smaller and offer reduced technical complexity. The TDA mechanism enables controlled boom deployment and/or synchronized deployment of many booms, which is vital to large aperture systems.



ABOUT MMA Design: Space is our passion and exploring is in our DNA.

Headquartered in Louisville, Colorado, our creative and agile team is creating innovative, ingeniously packaged, disruptive deployable payload solutions that are revolutionizing the state-of-the-art. From R+D to flight, we think out of the box to put more into the box for your mission.

Learn more at www.mmadesignllc.com

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