

Micro Aerodynamic Drag Technology for Deceleration, Stabilization, and Control of Falling Bodies

Project Sponsor: Dr. Greg Selby

Project Supervisor: Dr. Greg Selby

Number of students needed: 3 or 4

When needed: ASAP

Baseline application: spherical reentry vehicle with large number of thin rods/petals with large sectional cross flow drag. Aerodynamic behavior of petals and based upon very low Reynolds number aerodynamics. Petals are flexible and unidirectional; rigid to facilitate stowage and deployment. Petal provide spin stability and control

Studies:

1. Cross-flow of circular cylinders as a function of Reynolds number
2. Characterize cylinder cross section shape effects for 1 above
3. Characterize the effect of cylinder inclination to flow for 1 above
4. Structural design of very small rigid rods (solid, hollow, porous, etc...)
5. Mechanical and structural design of folding and deployment of rods.