

1010-35-127      **E Cliff** and **T L Herdman\*** ([herdman@icam.vt.edu](mailto:herdman@icam.vt.edu)), ICAM 0531, Wright House, Virginia Tech, Blacksburg, VA 24061, and **Z Y Liu**. *Thermo-mechanical response in space structures*. Preliminary report.

Large space systems are commonly fabricated as truss structures. In this talk we study a thermo-elastic model of a basic element consisting of two beam/columns connected by a joint. Of particular interest is the response to varying thermal loads, such as those occurring when the spacecraft moves into or out of Earth's shadow.

A coupled system of ODE/PDE's (plus boundary conditions), describing thermal/mechanical response, is formulated as a dynamical system in an appropriate Hilbert space. Well-posedness is established for a linearized model and numerical approximation is discussed. (Received August 23, 2005)