

HPC4MFG

Program Significance, Challenges and Importance

- Harper international builds big furnace systems
 - Furnaces have processing chambers (~3 to 5m wide, .25m tall and ~15m long, $T > 1600^{\circ}\text{C}$)
 - Uniformity requirements ± 3 degrees temperature, $\pm 2\%$ velocity
 - Controlled atmosphere, modified by gas evolution from the process
- Building equipment without simulation is not sensible
- Challenge for small company to provide resources
- Harper not very knowledgeable about resources in National Labs
- Concerns: IP, Cost of and access to software packages, Continuation of work after project ends, publications. Critical mass within companies. Export control.

Ideas: Consortia of small companies to pool resources for software packages.

Continue projects for years 2 and 3 with increasing company contributions