BUCKY parameter sweeps using Condor – a powerful analysis tool

Milad Fatenejad, Paul Wilson, Gregory Moses

Fusion Technology Institute
University of Wisconsin-Madison

HAPL Meeting, Naval Research Lab
December 5-6, 2002
Washington DC
Grid computing with Condor utilizes idle computers over the Internet

- Condor schedules jobs on idle computers in a Condor flock and returns results to the user’s computer
- Condor is supported by the NSF PACI program, ITR program and Middleware initiative and the University of Wisconsin
- Condor is extensively used in many computational science communities including high energy physics
BUCKY/Condor is a new analysis tool for HAPL program

- Uncertainty analysis or parameter sweeps
  - BUCKY is the kernel for “meta” analysis
- Rapid turnaround
  - 1000 runs overnight
- Automated problem setup
  - One “proto-deck” and parameter ranges
- College of Engineering Condor flock
  - 450 workstations in student labs
  - FTI Linux cluster (16 / 56 processors)
What parameter sweeps and uncertainty/sensitivity analysis should be done next? Christmas break gives us substantial computing resources.

900 BUCKY simulations sweep chamber radius, Xe density and initial wall temperature