**Proposed Work-
University of Wisconsin
First Wall Battle Plan**

HAPL Meeting
Albuquerque, NM
April 9-10, 2003

Remaining Work for First Wall Battle Plan Falls into 4 Areas

- Threat Spectra to first walls and operating windows for W coated steel in ETF

- Incorporate surface W roughening criteria from MWG into operating window studies

- W roughening experiment

- Model W behavior (with SNL)

Threat Spectra to First Walls and Operating Windows for W Coated Steel in ETF

- BUCKY calculation of Output from 40 MJ target

- Establish operating window for W/FS first wall in ETF for roughening, melting, and vaporization.

- Converged ion binning for all ion species in threat spectrum

- Automate "handoff" from BUCKY to ANSYS

- Document information from 10,000+ BUCKY/CONDOR runs (W and C)

Incorporate Surface Roughening Criteria from MWG into Operating Window Studies

- As existing roughening criteria for W are refined, additional BUCKY runs will be performed

- As new criteria for fracture of W/Steel are established, additional BUCKY/ANSYS runs will be performed

Incorporate Surface Roughening Criteria from MWG into Operating Window Studies

- Characterize As-Received W
- Conduct first steady state He injection,
    150 keV, T=1,000 °C, 10^{18} /cm^2
- Analyze roughening in W surface
- Analyze depth profile of implanted He
- Co-ordinate research with HAPL partners

Model W Behavior (with SNL)

- Use BUCKY to simulate vaporization and melting of W irradiated in Z and RHEPP

- Investigate roughening with respect to stress-strain history (new model in BUCKY)

We Have Come a Long Way In Designing Reactors!