

NCSX Project Overview

Hutch Neilson

NCSX Project Manager

**NCSX Project Meeting on
Physics Design for Good Magnetic Surfaces and Flexibility
Princeton Plasma Physics Laboratory
September 2, 1999**

News and Developments

- FESAC panel report was generally positive for compact stellarators.
 - Must resolve issue of NCSX “robustness of the equilibrium configuration throughout the plasma evolution” to satisfy readiness for PoP.
 - Expectation is that this will be addressed soon. To be closed out at NCSX Conceptual Design Review.
 - Recommended support for “expeditious completion of an optimized design and a successful CDR,” including budget increases.
- Full FESAC meets with panel Sept. 8-9.
- Stellarator program also fared well in Snowmass discussion. Documentation is in progress (due 9/10).

Project Status

- FY-1999: substantial progress made toward a plasma, coil, and engineering concept satisfying NCSX goals. Well summarized at June PAC Meeting.
- Current issues center on physics design to obtain:
 - * Good magnetic surfaces.
 - * Equilibrium flexibility / robustness / startup.
 - Access for heating, diagnostics.
 - Control for enhanced confinement.

*Critical path and focus for this meeting!

Project Planning

- Key milestones (could get merged into one):
 - Physics Validation Review (physics mission, requirements, justification, design basis; engineering plausibility; preconceptual cost and schedule)
 - Conceptual Design Review (design feasibility; establish project baseline)
- Schedule for these milestones is currently undefined. Steps to resolution:
 - Define what needs to be accomplished for reviews to be successful.
 - * Determine how to go about it (new tools? analyses? concepts?)
 - * Develop plans and estimate how long it will take.
 - Schedule reviews.

*Focus for this meeting!

This Meeting

- Focus on how to design for good surfaces and flexibility/robustness.
- Expect to hear about new ideas, exploratory studies, work in progress.
- Ample discussion to identify promising approaches to pursue.
- Decide what to do.

Miscellaneous

- Submit electronic presentations to Autumn Percival (apercival@pppl.gov , 609-243-2653) for posting on web site. Allow decent lead time.
- Contact Autumn for assistance.

Calendar Update

- Sept. 23-24** U.S.-Japan Workshop on Stellarator Concept Improvement, Oak Ridge, TN.
- Sep. 26-Oct. 1** 12th International Stellarator Workshop, Madison, WI.
- Nov. 15-19** APS Division of Plasma Physics Meeting, Seattle, WA.
- ~Dec. ??** NCSX Project Meeting