

NCSX Project Overview

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NCSX Project Meeting

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Progress Since Sept. Project Meeting: Highlights

Publications and Presentations

- IAEA Meeting, Oct. 4-10, Sorrento: 5 compact stellarator papers.
- Varenna Alternates Meeting, Oct. 12-16: H. Mynick presentation.
- APS Meeting, Oct. 23-27, Quebec: A. Reiman invited paper, ~17 posters.
- Journal article on GA/coil design submitted : W. Miner & coil group.
- Seminar at MIT, Nov. 8: S. Hirshman

Progress on NCSX Design

- Reconstruction of physics properties from coils.
- Trim coils.
- Development of modular coil machine design.

Planning for FY-2001

- Physics and Engineering Schedules
- Physics Validation Review re-scheduled to late March

Status of Modular and Saddle Coils

Modular Coils

- Physics performance comes closer to satisfying requirements.
- Engineering development in the early stages → has greater uncertainty.
- Currently the basis for most of the project's design effort.
 - Machine design.
 - Trim coils.
 - Power supplies and siting.

Saddle Coils

- Concept development has progressed substantially in last 2 years.
 - Many issues resolved; engineering uncertainties have been reduced.
- So far, falls short of required physics performance. But not all reasonable improvement strategies have been exhausted.
- We continue trying to improve physics performance as schedule permits.

For the PVR

- Need one design that works.
- A backup with the potential to be even better would not be bad to have.

Plan for the Physics Validation Review

Expected Review Issues

- Scientific quality of the proposed research.
- Programmatic benefit (FESAC goals, etc.)
- Soundness of physics basis, resolution of issues.
- Appropriateness of the physics requirements.
- Reliable cost and schedule estimates.
- Adequacy of the plans and personnel to carry out project.

Schedule

Dec. 20. Fix requirements (incl. size, reference scenario, flexibility, trim coils, P&PH). Decide site.

Jan. 31. Commit to PVR (60 days in advance).

Feb. 28. Complete design and cost/schedule development. 1st drafts due.

Mar. 14. PVR Documents Issued.

Mar. 28-30. Physics Validation Review.

Calendar

Dec. 19-20. Project Meeting.

Jan. 30-31. Project Meeting.

Feb. 27-28. Project Meeting. First Drafts due.

Mar. 12. *DOE/OFES Annual Budget (FWP) Meeting.*

Mar. 14. PVR Documents Issued.

Mar. 28-30. NCSX Physics Validation Review.

Apr. 2-4. *Sherwood Meeting.*

Apr. 24-25. *QOS Physics Validation Review.*

~May 21. *ORNL Theory Review.*

May 30-31. DOE Project Validation for FY-2003.

To be scheduled: Seminars at key fusion institutions to explain program.

ICC Workshop?

Goals for This Meeting

- Confirm our plans through the PVR.
- Establish physics design of basic modular coil set.
- Track progress on requirements, concepts, and engineering development.
- Provide physics guidelines for size-field tradeoffs.

Sessions:

- Overviews and Plans
- Physics Design of Coils
- Power and Particle Handling
- Engineering