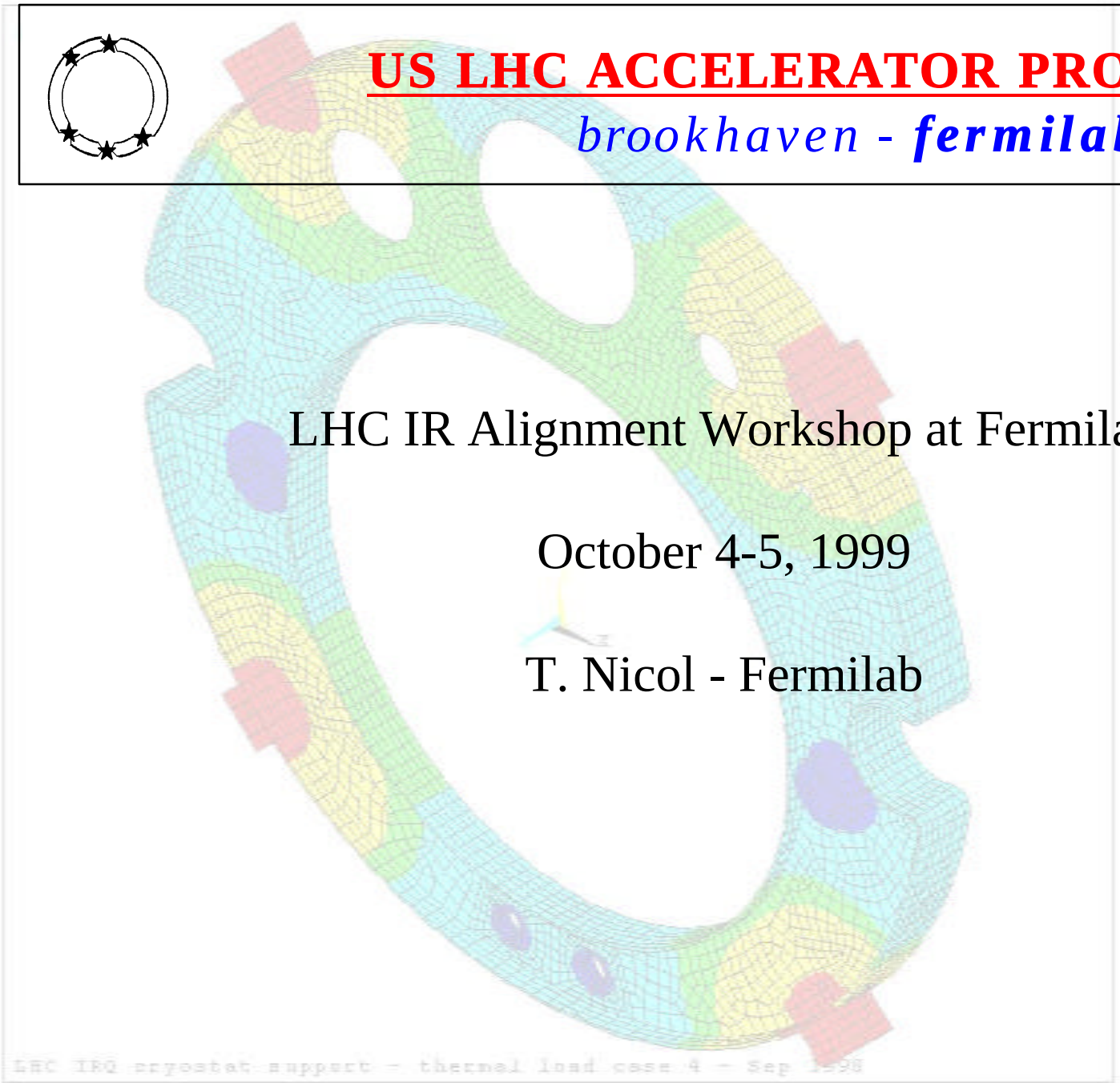
US LHC ACCELERATOR PROJECT

*brookhaven - **fermilab** - berkeley*



LHC IR Alignment Workshop at Fermilab

October 4-5, 1999

T. Nicol - Fermilab

Summary

The cryostat consists of all parts of the completed magnet with the exception of the cold mass itself. As such it serves as the system which defines the warm and cold positions of the cold mass, provides the structural supports to resist shipping, handling, and operational loads (some may be permanent, some temporary), provides the features for measuring the position of the cold mass, and provides the features for aligning the cold mass in the experimental halls.

Questions

- How well do we need to determine the magnetic position with respect to the outside fiducials and how well can we do it?
- How well do we need to align the Q2a and Q2b cold masses with respect to each other and how well can we do it?
- How repeatable should the warm-to-cold mechanical movement be from magnet to magnet?
- How much permanent movement of the warm position is acceptable during shipping and handling?
- What kind of structures do we need to design and build in addition to the magnets to ensure their mechanical integrity during shipping?
- How do we determine the magnetic position after shipping, i.e. at CERN?

Topics for discussion

- Status of the cryostat design.
- Cold mass to suspension system interface.
- Final assembly concept.
- Deflection analysis results.
- Preliminary alignment fiducial mounting and location.
- Q2a/Q2b weld fixture and test.
- Short term plans (alignment related).

Short term plans (alignment related)

- Continue analysis and testing of the spider support.
- Initiate testing of the cold mass slides and slide materials.
- Finalize the design of the suspension system, including the cold mass to suspension interface.
- Test a mock-up of the weld between Q2a and Q2b.
- ...