NCSX Project Telecon

11 July 2001

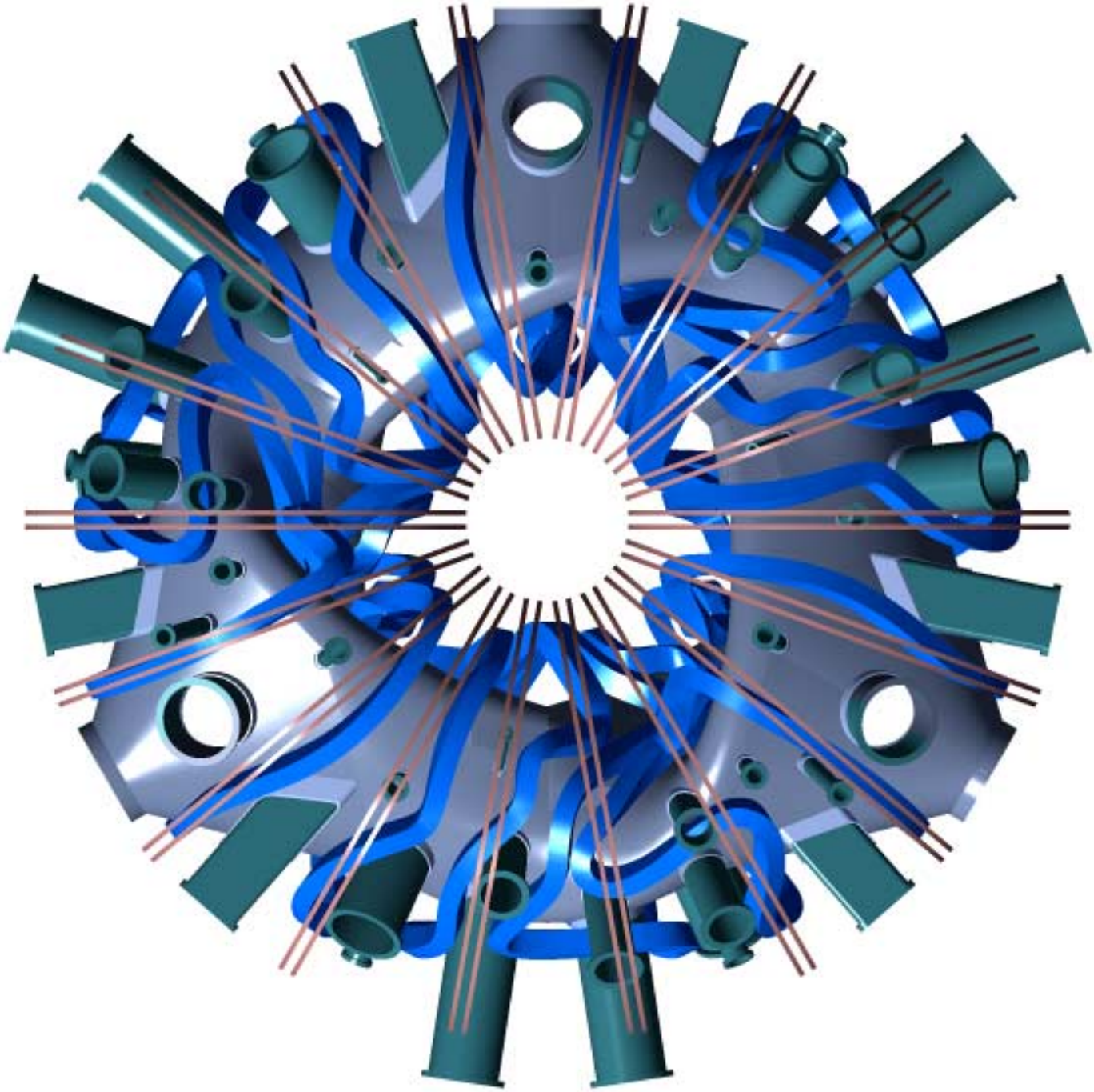
Wayne Reiersen

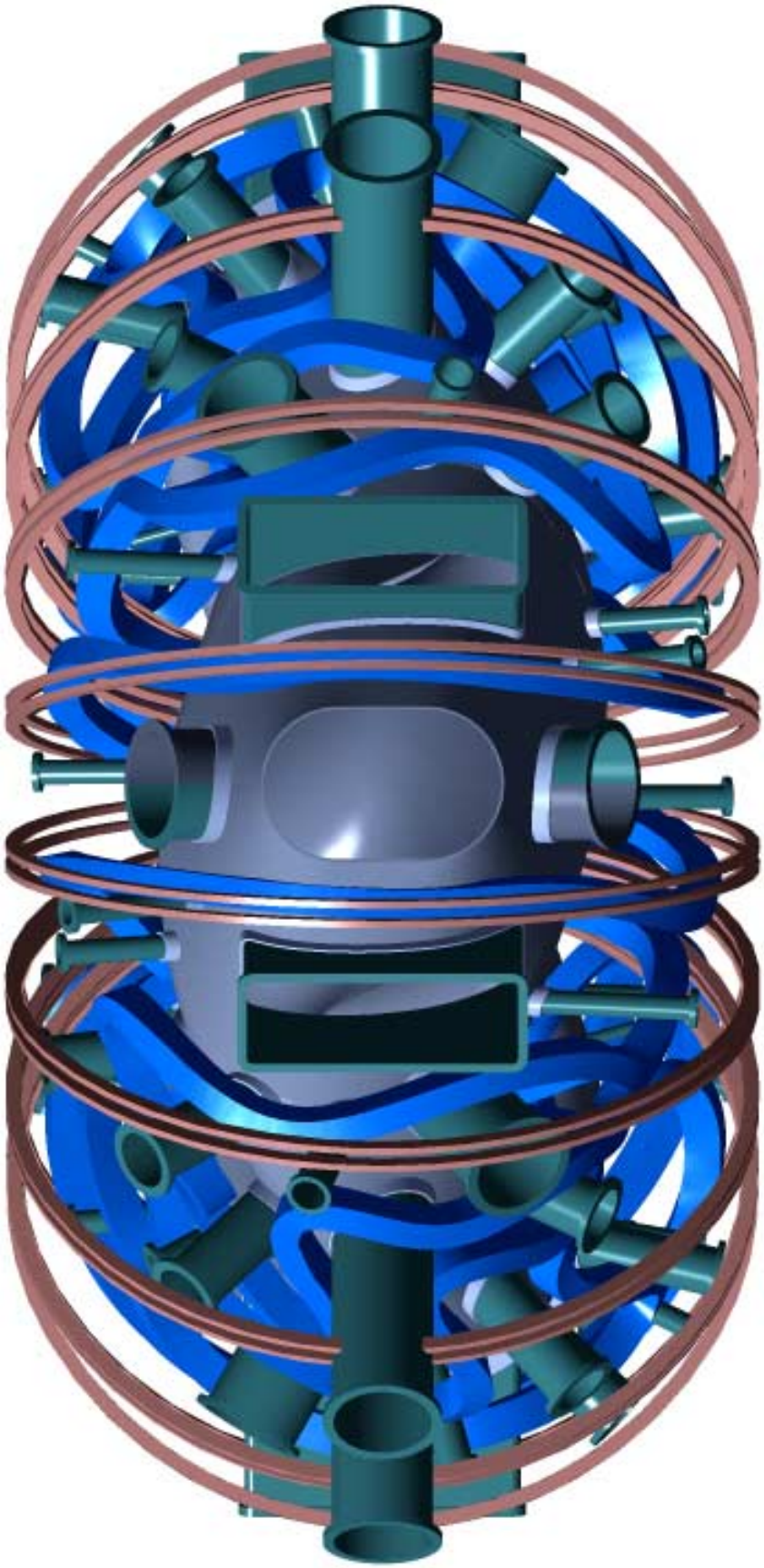
Plans

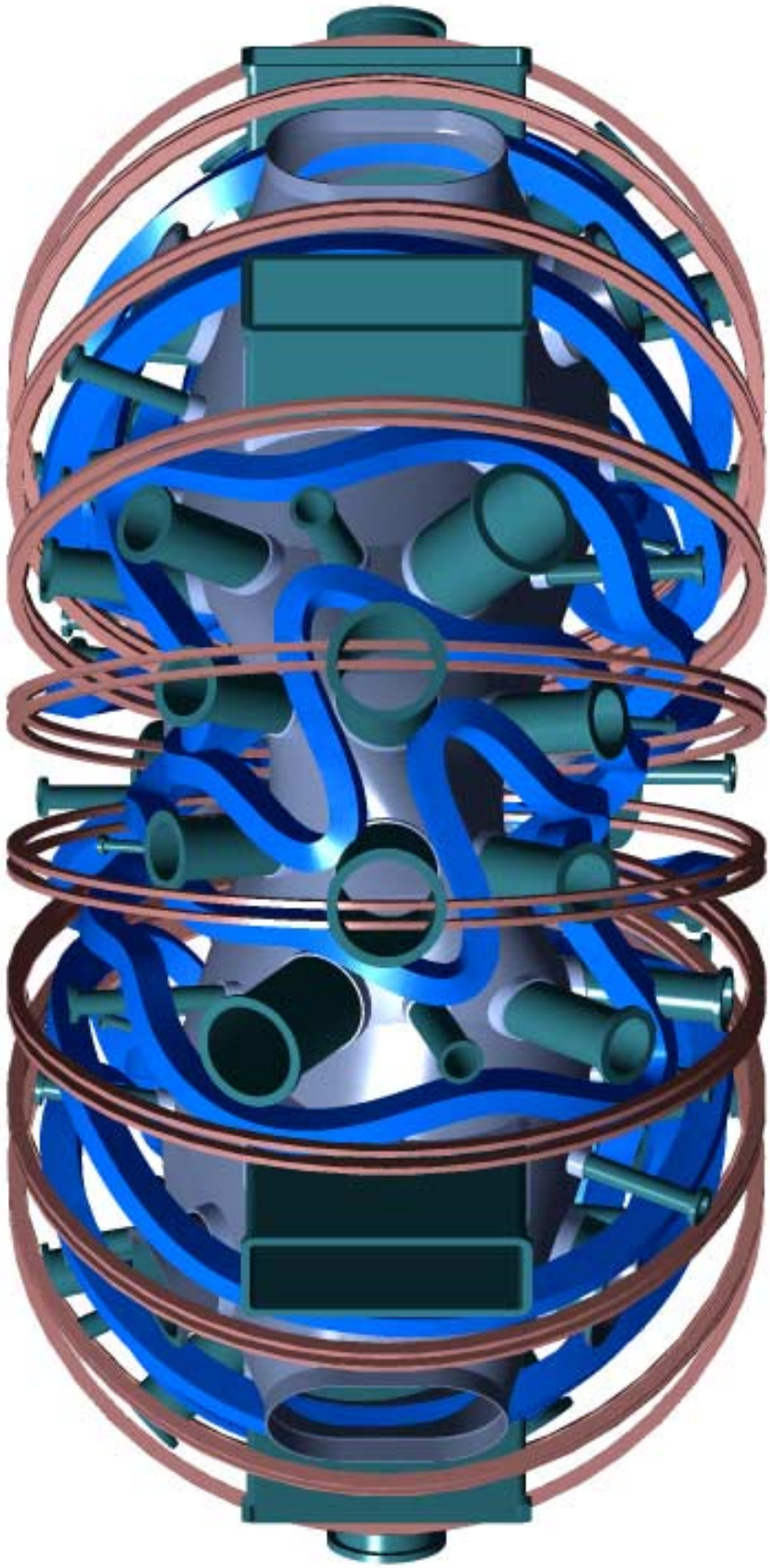
- A preliminary work plan for Engineering has been posted on the NCSX Web
- Physics deliverables have been identified and reviewed with Zarnstorff
- Still needs some work to flesh out the full scope of work for FY02
- Posted plan will be used to status technical progress at weekly telecons

Strickler has developed some interesting coil sets

- A 21-coil design with improved performance
  - Williamson will manually change the radius of curvature locally where it is too tight and send the revised coil set to Ku for evaluations (Ref. Williamson)
- An 18-coil design with attractive features
  - Fewer coils (18) and coil types (3), reduced cost
  - Improved access - no coils on symmetry planes, no “oversized coils”
  - Stability OK, quasi-symmetry worse (Ref. Ku)
    - Ku to see if QA can be improved by independently powering TFCs
  - Still has “double back” feature near v=0.5
    - Brown to see if dipoles can be added to remove “double back” feature
- Coupled StellOpt-CoilOpt not yet ready for prime time







Reiersen developed a 5-coil PF option

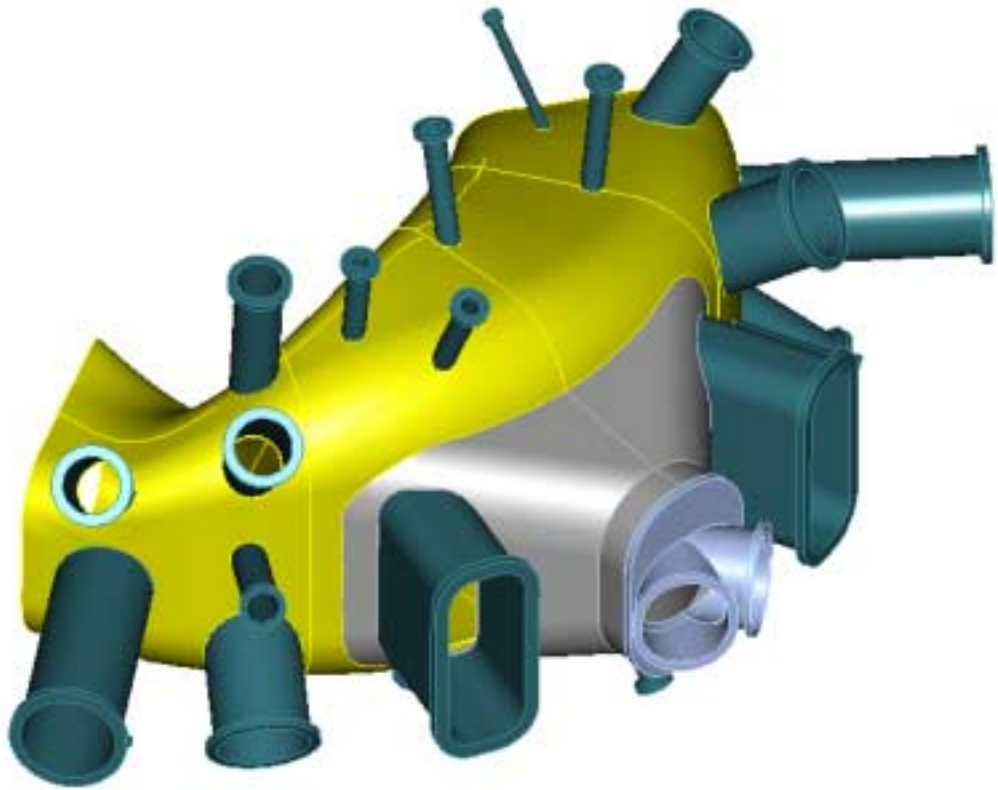
- Fifth coil added above major radius
- Much improvement seen in the quality of the nullapole (OH) and quadrapole fields
- Pomphrey assessing the impact on flexibility
- Cole assessing access implications (Ref. Williamson)
- Non-circular PF options and non-1/R TF options being developed

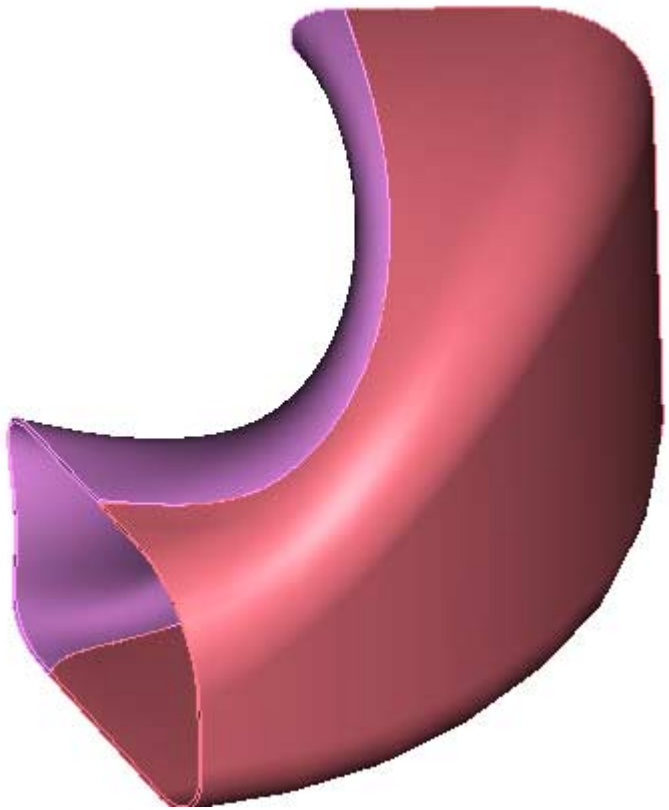
Cole is assessing the impacts of accommodating inboard RF

- Looks promising - should be wrapped up by July project meeting
- Cole also working with Johnson on accommodating Thomson scattering diagnostic

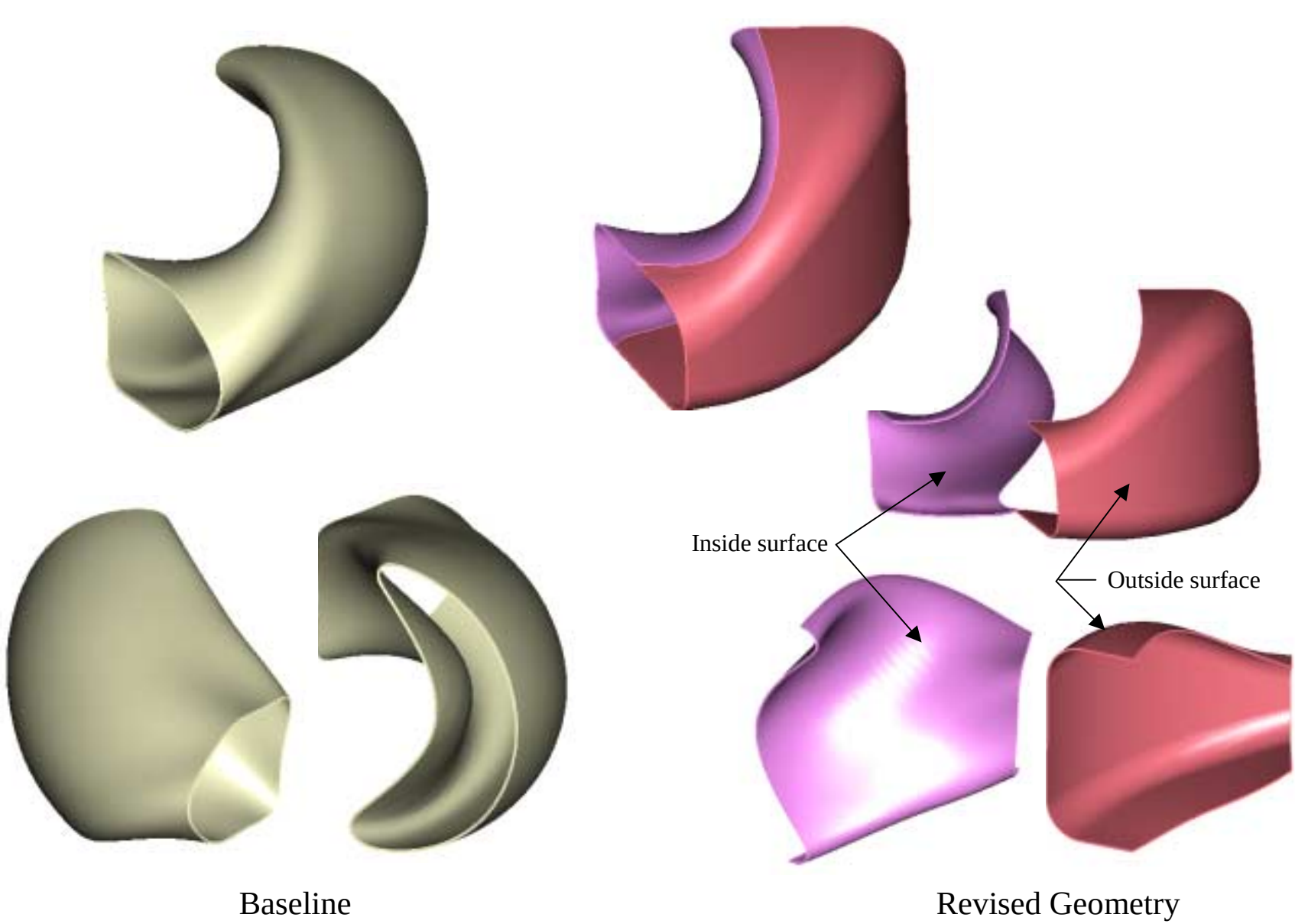
Brown is exploring alternate VV and FW concepts

- Ukrainians will be asked to assess design and cost impacts
- Nelson to report on next steps next week





Revised FW surface geometry for making tiles. Surface split between inside and outside sections.



Baseline

Revised Geometry

Comparison of FW surface geometry for making tile sections

Nelson working with Mioduszewski to establish “stay out” zone for laying out PFCs

- Envelopes being established for pumped divertor
- Inboard limiter geometry nees to be established
- RF launcher design needs to be integrated with PFC concept

Brooks is validating the trim coil design and investigating field errors from construction errors

- Methodology being worked with Zarnstorff
- PIES cannot handle the general case (must preserve stellarator symmetry) and cannot be run as a routine tool (clock time and convergence issues)

Heitzenroeder and Nelson are preparing for the **August 22** Information Meeting

- Plans drawn up and assignments made
- CBD announcement drafted
- E-mails will be sent to specific companies whose capabilities match what we need

Summary

- Engineering work plan
  - Coordinated with Physics (MZ)
  - posted on Web
  - will be used to status technical work
- Schedule for CDR is aggressive, need to stay on top of critical path activities
- Developing a coil design for the CDR by September is our #1 priority
- Project meeting scheduled for July 24-25
- Information meeting scheduled for August 22