Supported by Office of Science

Development of a Diagnostic Neutral Beam for NCSX

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NOVA PHOTONICS

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DNB Development Plan

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- Nova Photonics has a Phase II STTR funded with Lawrence Berkeley National Laboratory (LBNL).

- Phase II STTR is from 8/06 to 8/08. To design, fabricate, and test DNB.

- LBNL is doing source design, based on previous external rf sources they have built, including for us.

- PPPL is providing space and utilities for integrated testing and commissioning.

- In FY09, pending collaboration funding from DOE, we plan to install the beam on NCSX.

Diagnostic Neutral Beam Parameters

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Parameter	Quantity
Current	5 Amps
Dimensions (grid extraction)	5x8 cm
Energy	40 keV
Pulse duration (total on time)	1 sec
Modulation frequency (Max)	500 Hz
Atomic fraction	>70%

Prototype Source Developed

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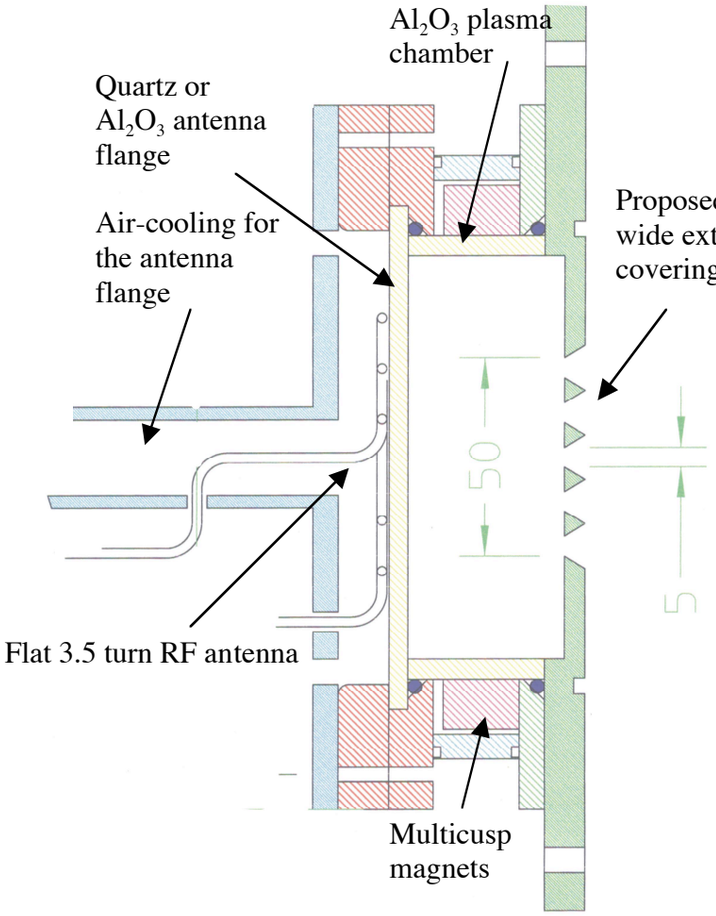

Concept for DNB Structure

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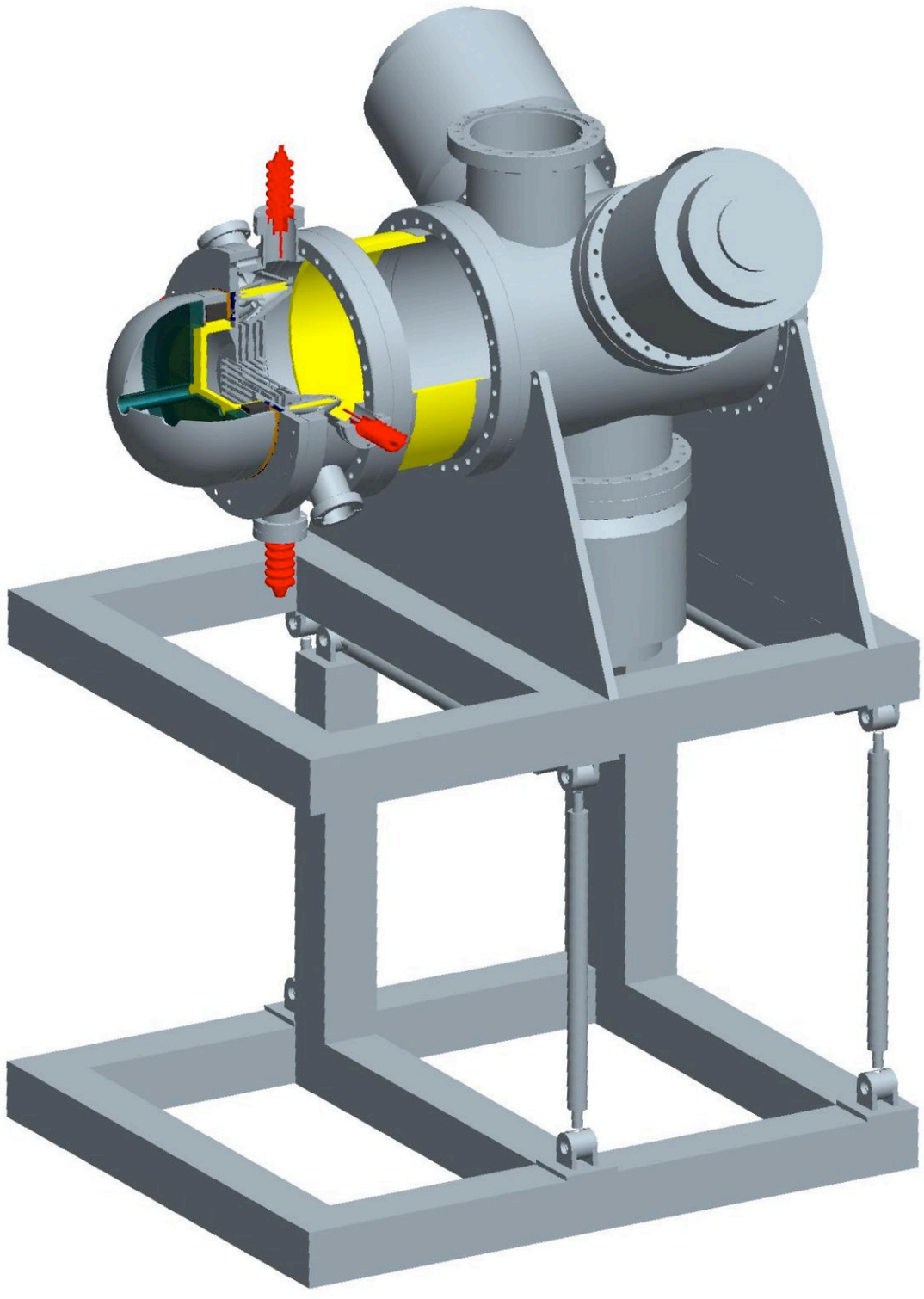
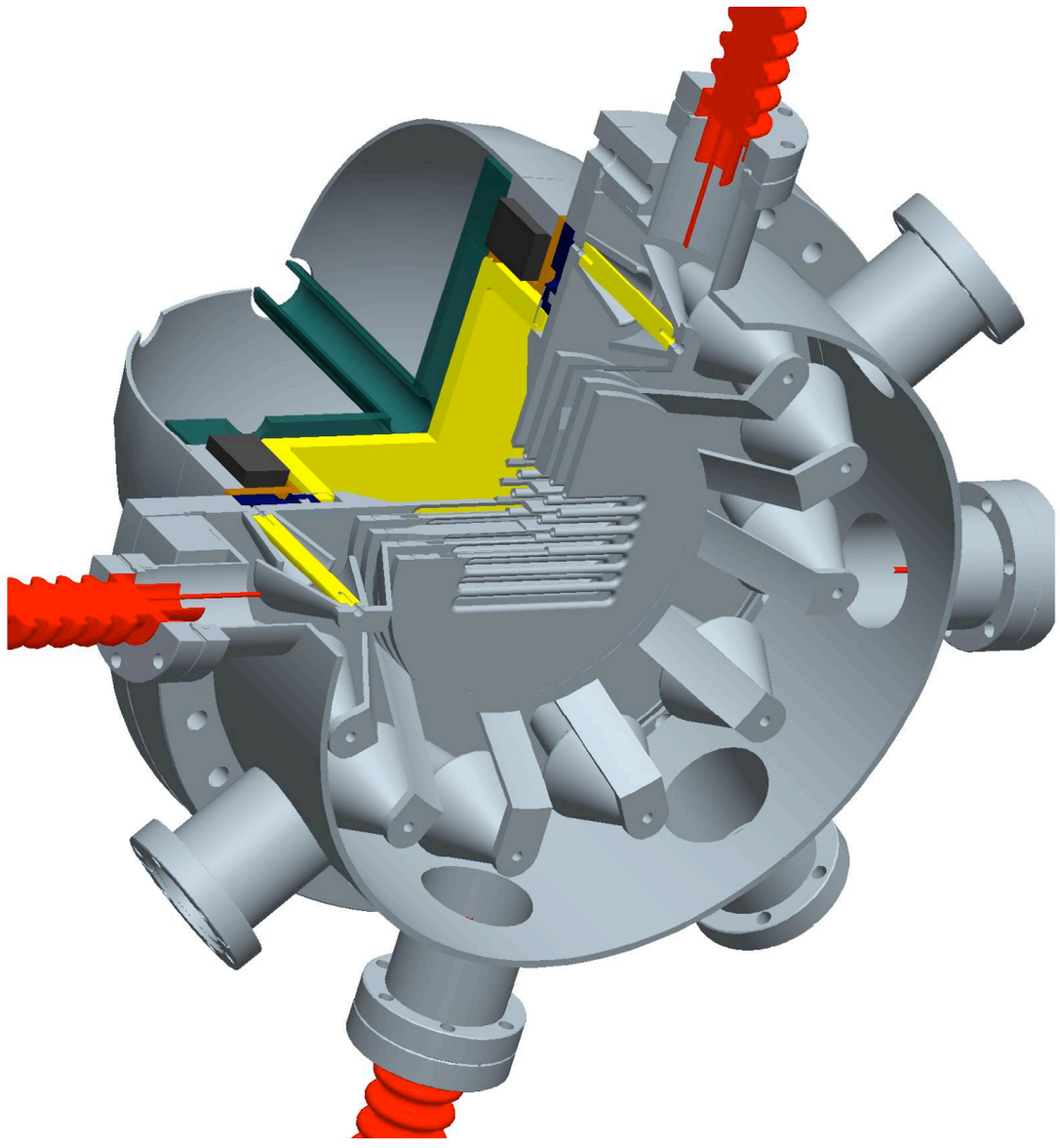


DNB Concept- Interior View



DNB/MSE Layout on NCSX

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- MSE view has near tangential view of DNB.
- View entire width of plasma.