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PTB

AG Optische Magnetometrie IPHT Jena

KATHOLIEKE UNIVERSITEIT LEUVEN

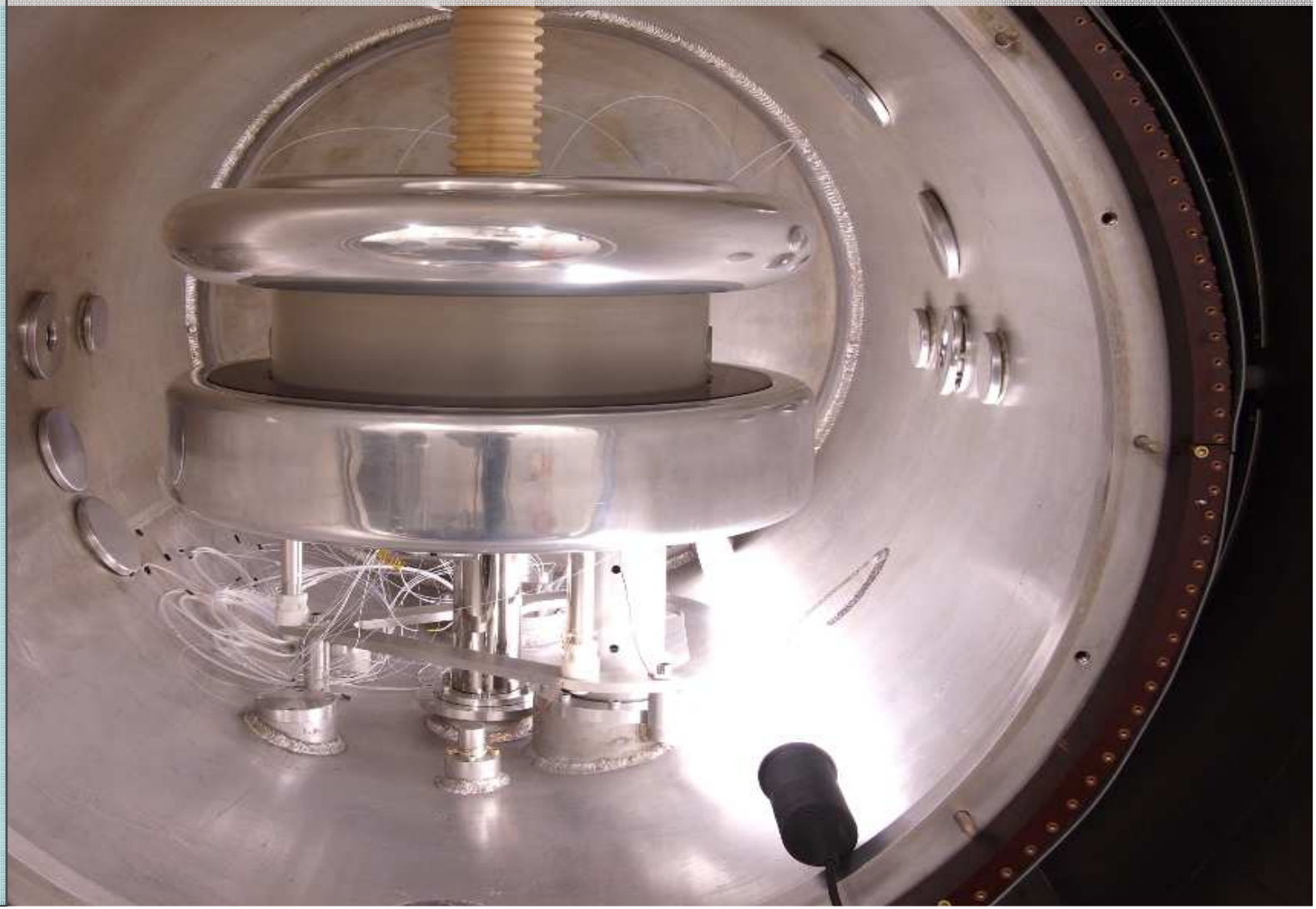
CSNSM

UNIVERSITAS FRIBURGENSIS

LPSC Grenoble

CAEN

Search for the nEDM in vacuum and at ambient temperature



06.2012

The Neutron EDM Collaboration

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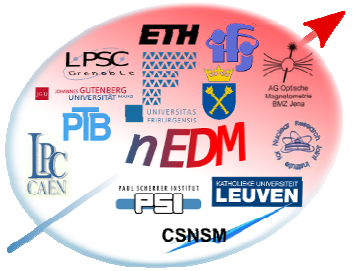
Our plan



- Phase I:
  - Operate and improve nEDM@ILL (all cycles 2008)
  - Moved nEDM March 2009
  - Design of n2EDM, related R&D

☑

- Phase II:
  - Operate nEDM@PSI (2009-2013 .. 14)
  - Sensitivity goal: 5×10^{-27}ecm
  - Design of n2EDM, construction and setup
  - R&D

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- Phase III:
  - Operate n2EDM (2014- ..)
  - Sensitivity goal: 5×10^{-28}ecm

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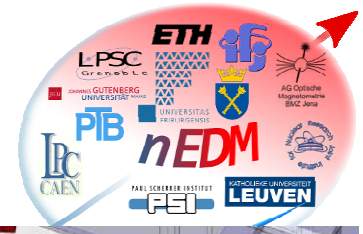
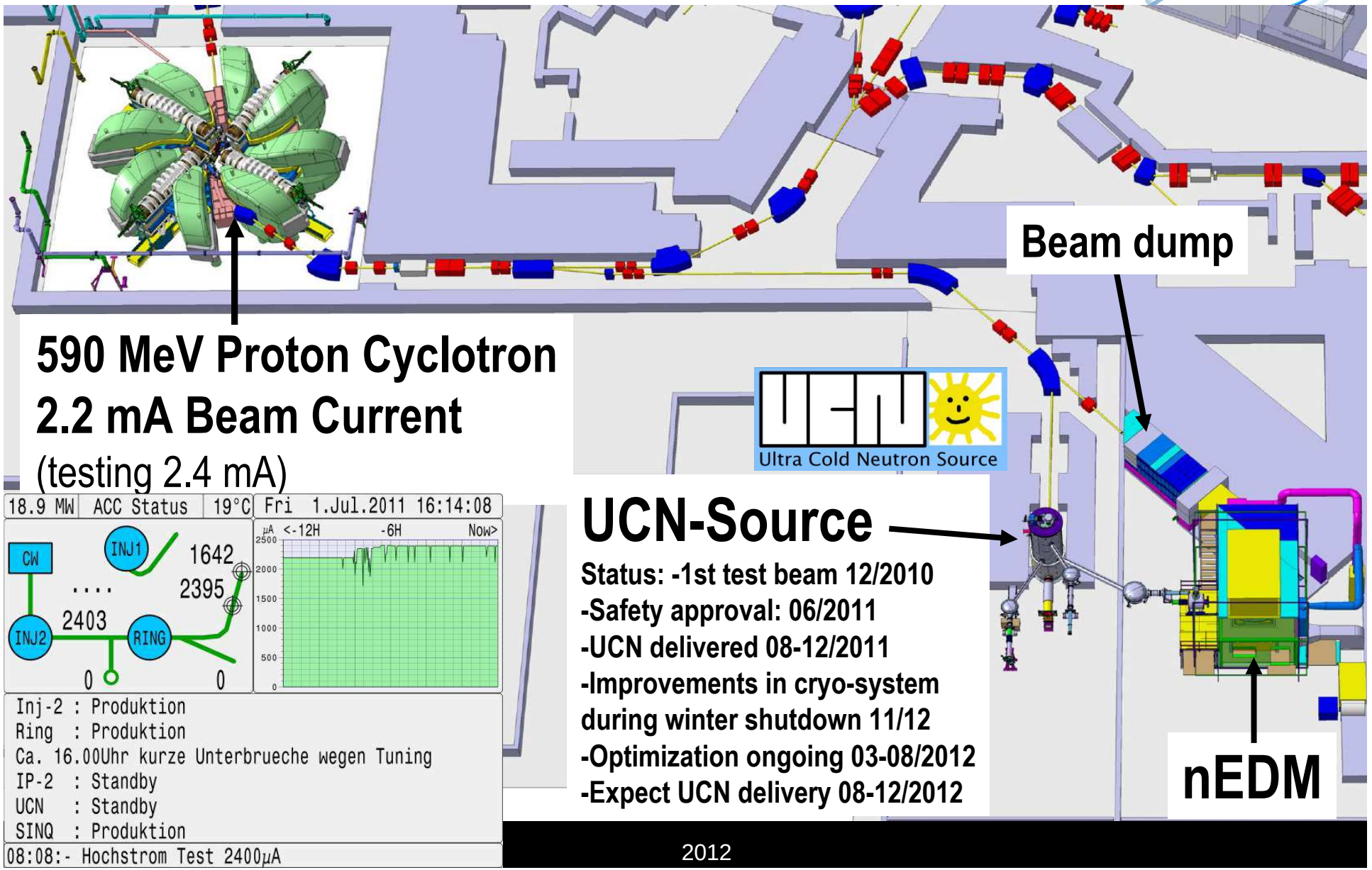
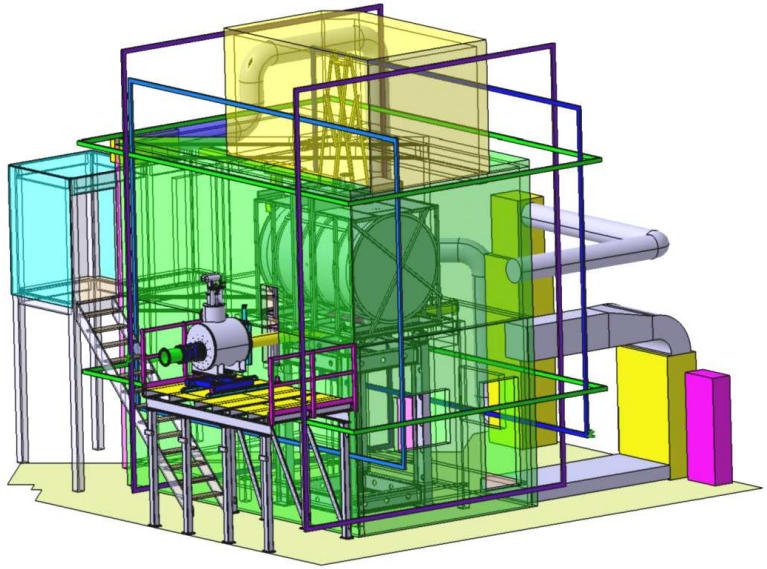
High Intensity Proton accelerator & UCN Source

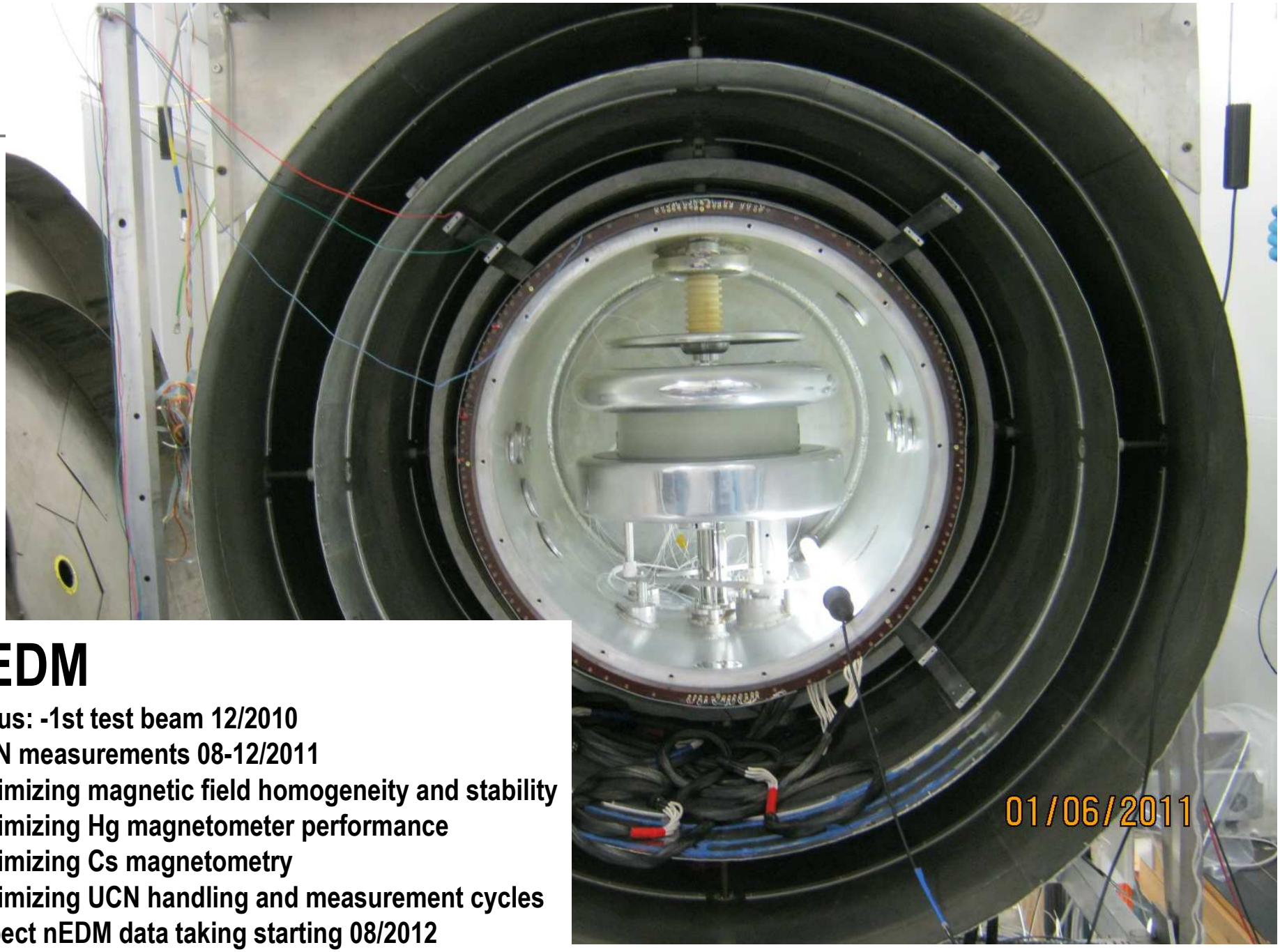




Installing nEDM at PSI in 2009

Coming from ILL
Sussex-RAL-ILL collaboration
PRL 97 (2006) 131801

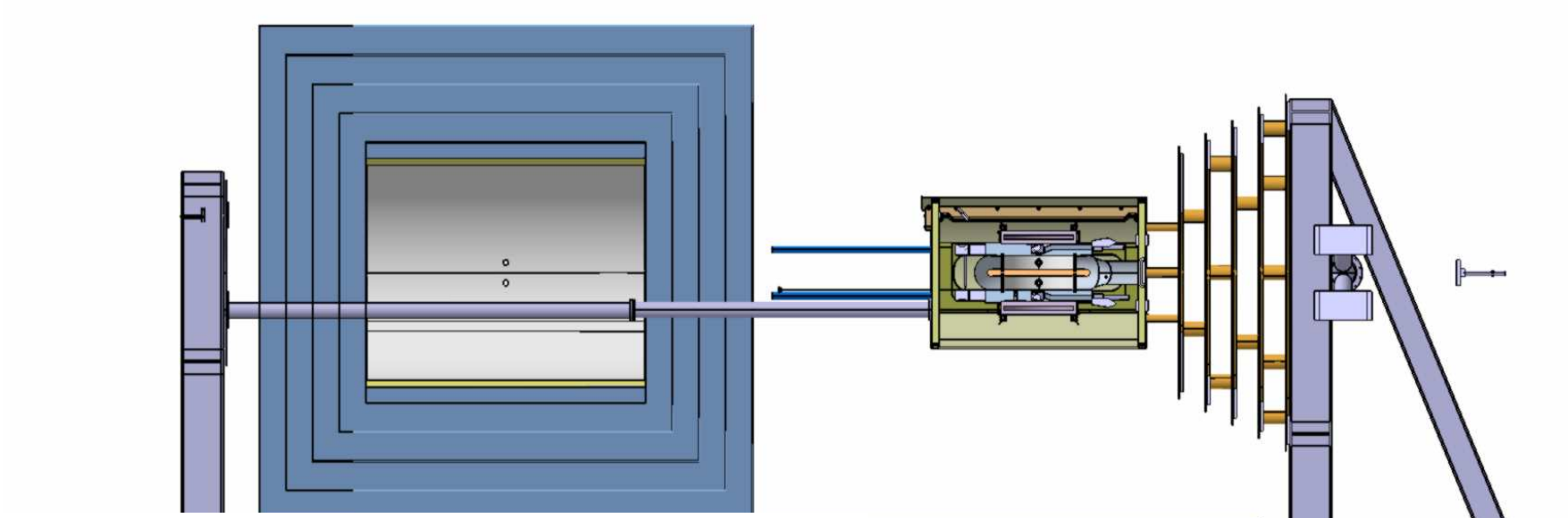




nEDM

Status: -1st test beam 12/2010
-UCN measurements 08-12/2011
-optimizing magnetic field homogeneity and stability
-optimizing Hg magnetometer performance
-optimizing Cs magnetometry
-optimizing UCN handling and measurement cycles
-expect nEDM data taking starting 08/2012

Phase III



n2EDM

Status: -conceptual design ongoing
- 2 UCN chambers, Hg co-magn., He-3 and Cs magnetometry
- various R&D projects under way concerning fields, magnetometry and handling of systematic issues
- staging and test area ready 08/2012
- assembly of apparatus starting 2013
- start of operation with UCN depending on nEDM