



DE LA RECHERCHE À L'INDUSTRIE

## Fusumatech

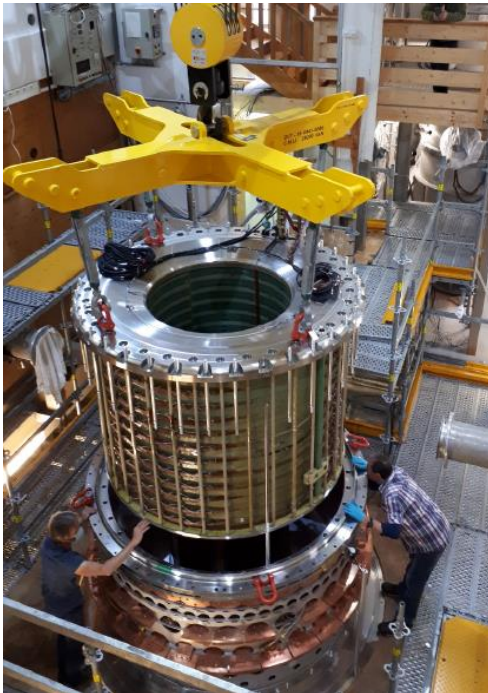
14 Decmeber 2021

Pierre Vedrine

# CEA presentation

## Higlights

- ▶ **LNCMI Hybrid magnet** : delivery and installation of NbTi 8.5 T – 500 mm Outsert
- ▶ **Iseult 11,7 T 90 cm MRI magnet** : nominal field in July 2019 – first image september 2021
- ▶ **High Field Magnet Roadmap for High Energy Physics**





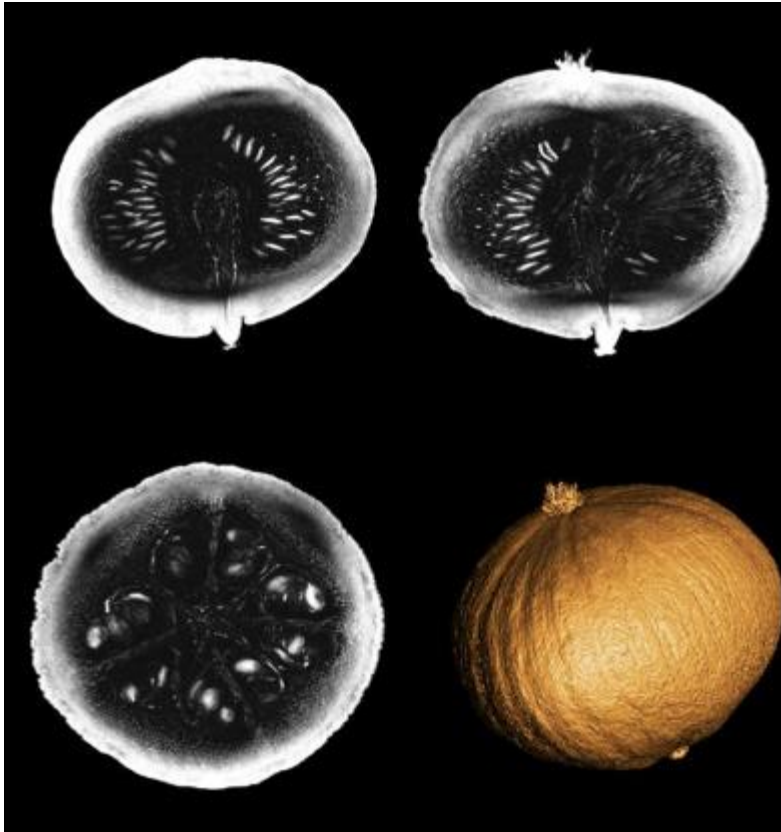
*Gradient coil insertion*



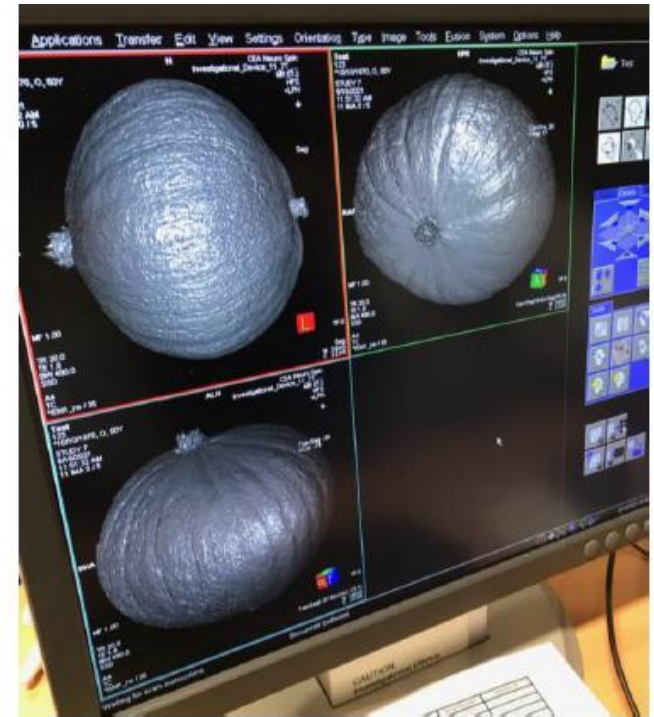
Courtesy Siemens Healthineers

*Start-up of the imaging equipment*





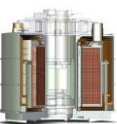
## Pumpkin



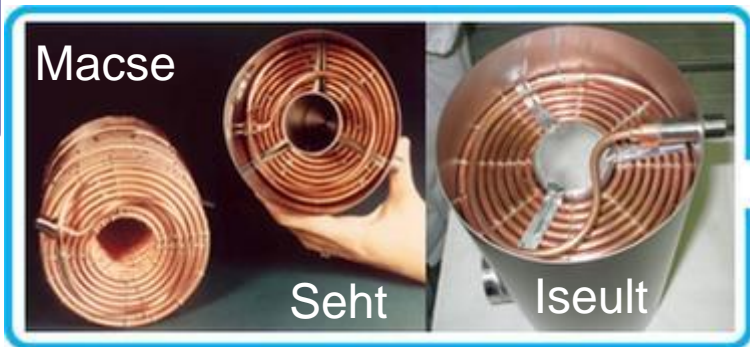
*Courtesy CEA/Neurospin/Joliot*



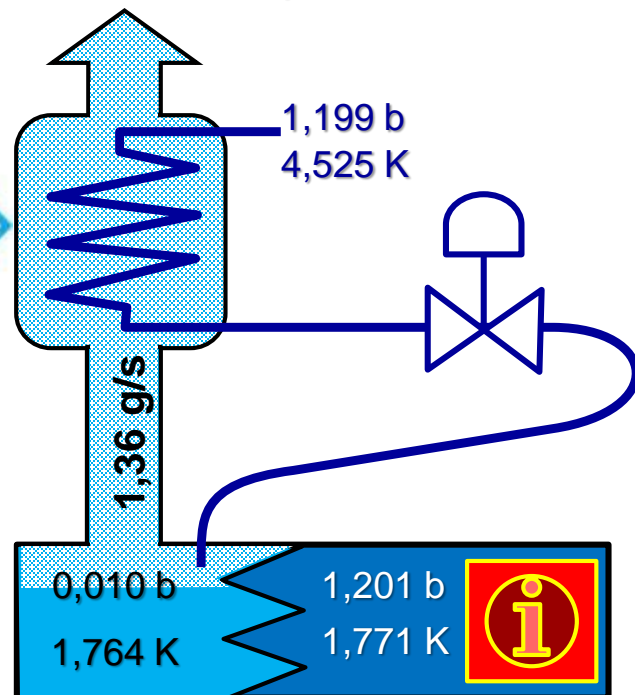
## Satellite power measurement up to 40 watts



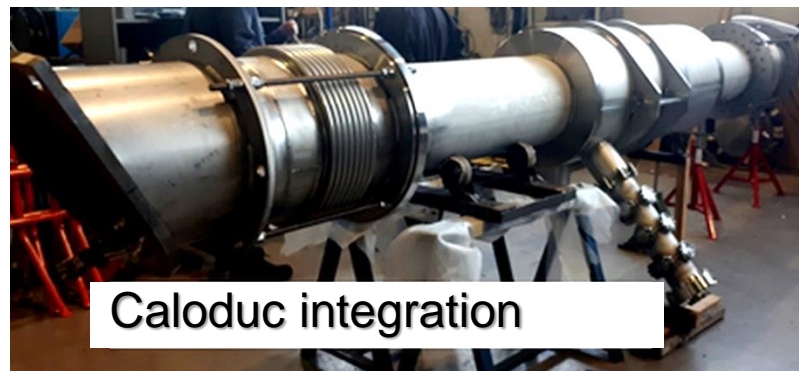
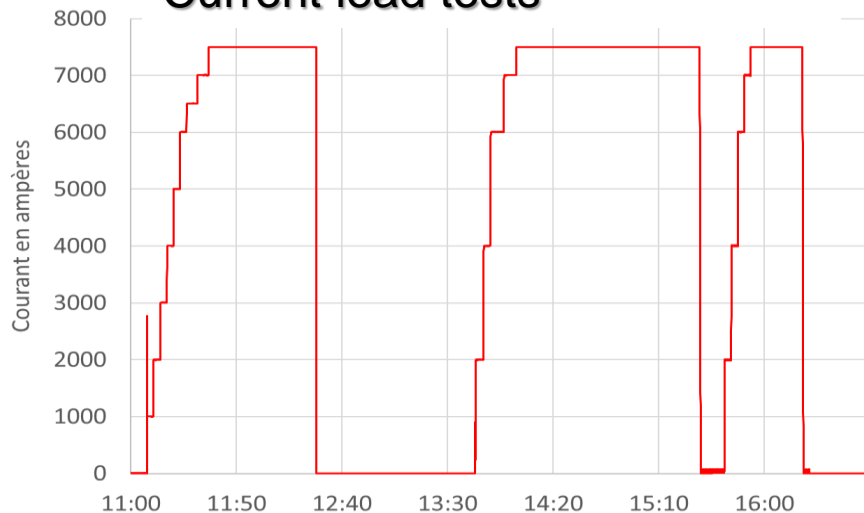
Supra hybride LNCMI

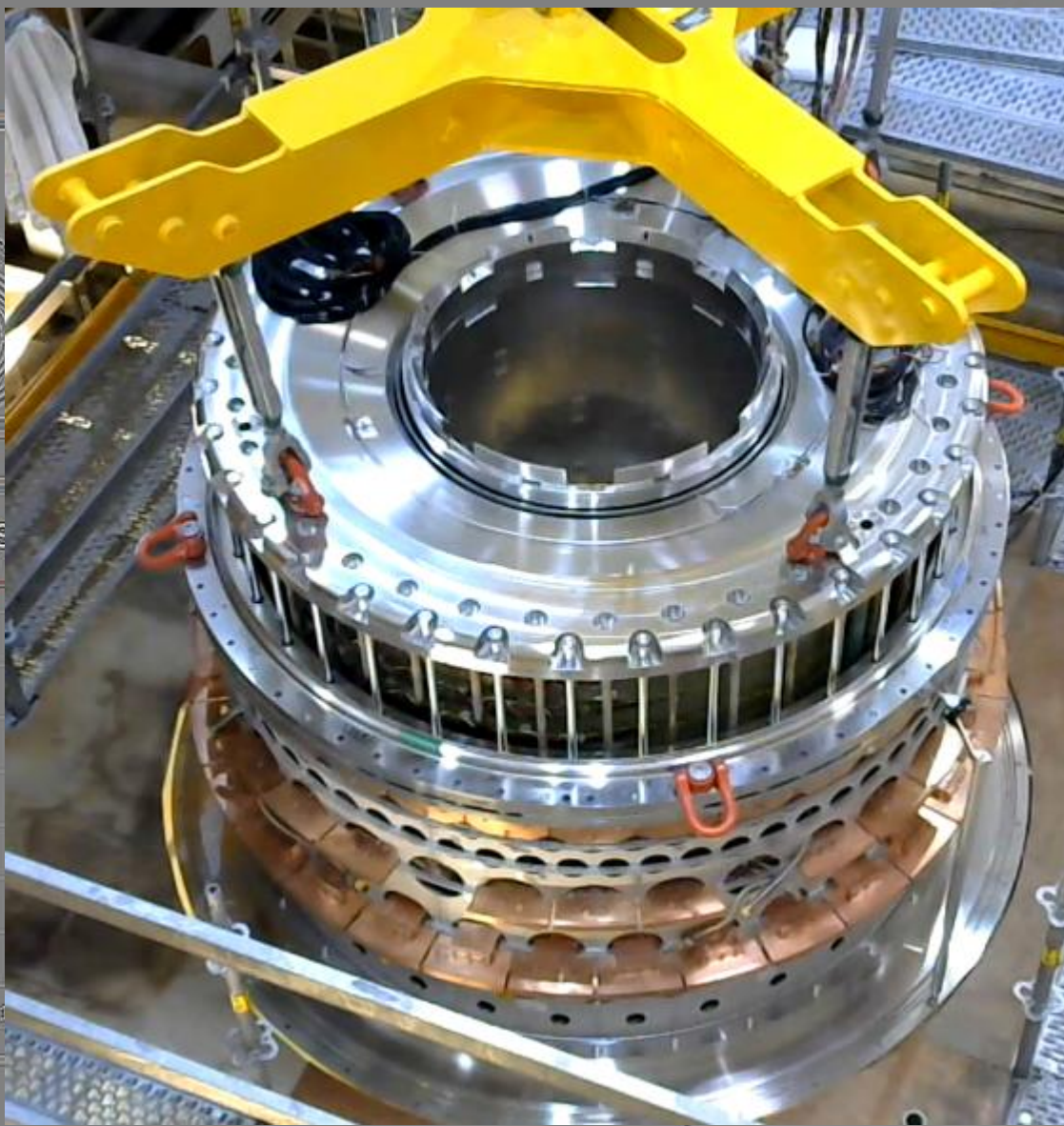


LNCMI



### Current lead tests





ure de puissance

 4,525 K  
 1199 mb

TT 401 &amp; PT 432

LCV 301

TT 302

1,793 K


**40 W Cryo.  
 disponibles**
**16 à 20 W de  
 consommation  
 attendue**

Courant en ampères

 8000  
 7000  
 6000  
 5000  
 4000  
 3000  
 2000  
 1000  
 0

11:00 14

Tes

- HFM Expert Panel held about 13 meetings to date.
- **Two open international workshops** were organized and held virtually. Details on the workshops can be found at:
  - **“HFM State-of-the-Art”** (SoftA workshop) took place April 14-16, 2021: <https://indico.cern.ch/event/1012691/>
  - **“HFM Roadmap Preparation”** (RoaP workshop) took place June 1&3, 2021: <https://indico.cern.ch/event/1032199/>

## Goal of the Roadmap

- Demonstrate Nb<sub>3</sub>Sn full potential in terms of ultimate performance (towards 16 T)
- Develop Nb<sub>3</sub>Sn magnet technology for collider-scale production, through **robust design**, industrial manufacturing processes and cost reduction (benchmark 12 T)
- Demonstrate suitability of HTS for accelerator magnet applications, providing a proof-of-principle of HTS magnet technology beyond the reach of Nb<sub>3</sub>Sn (towards 20 T)

Report available in January 2022

