WP9 TNA MagNet

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EuCARD-2 is co-funded by the partners and the European Commission under Capacities 7th Framework Programme, Grant Agreement 312453

WP 9 TNA MagNet

Within EUCARD^2 TransNational Access CERN extended access to SM18 infrastructures to test superconducting magnets and/or specific low temperature instrumentation .

CERN offers infrastructure and/or equipment and expert support

The budget from FP7 is used to installations, dismantling, transport of heavy equipment for test and for travel expenses of users

Users may profit from a stimulating environment @ CERN often hosting conferences and workshops in a specific subjects and offering free access to participation to them

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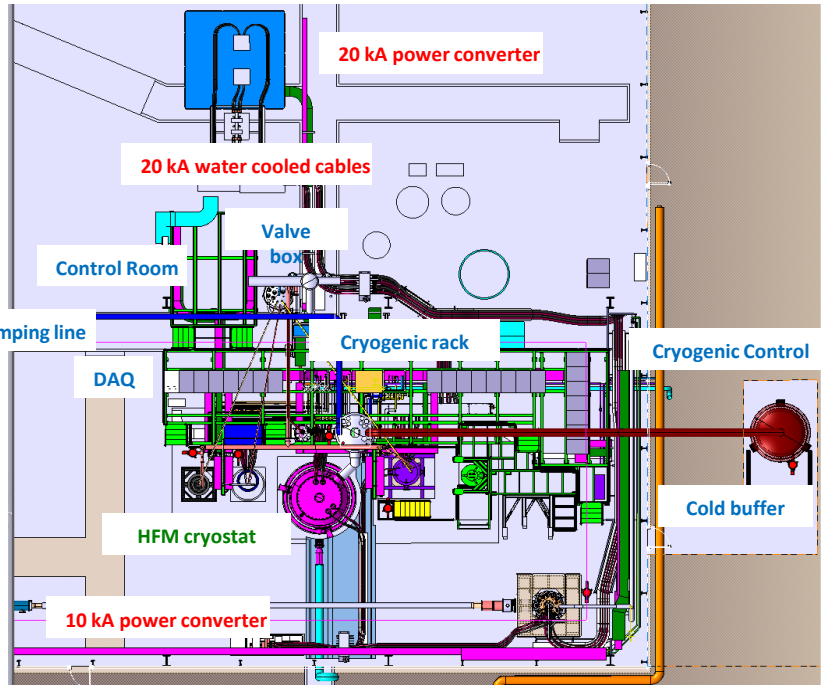
INFRASTRUCTURE

with the new comer

Vertical test cryostats

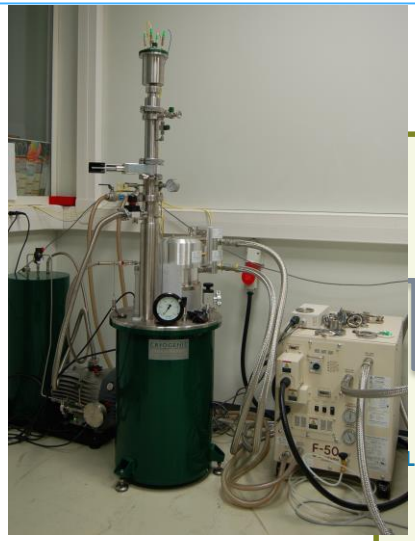


2-3 operational vertical cryostats
@ 20 kA @ up to1.9 K

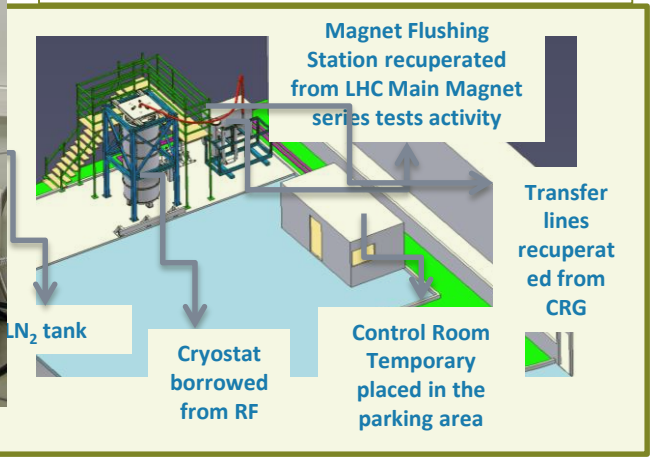
Horizontal test benches

6 operational horizontal benches @ 14 kA @ 1.9 K

Cryogen Free Cryostat



Magnet test @ LN_2



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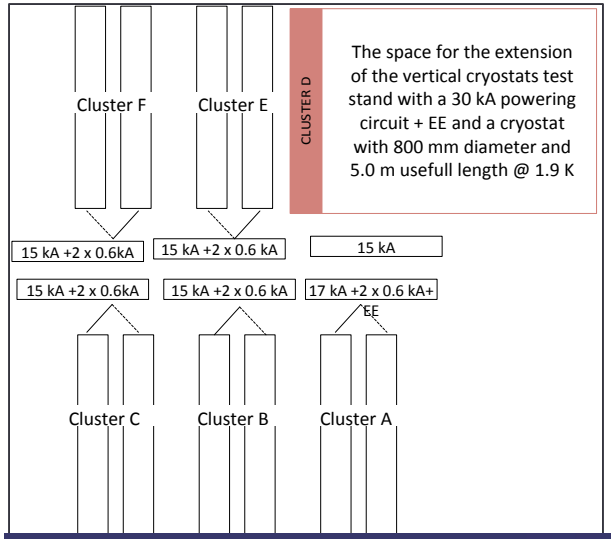
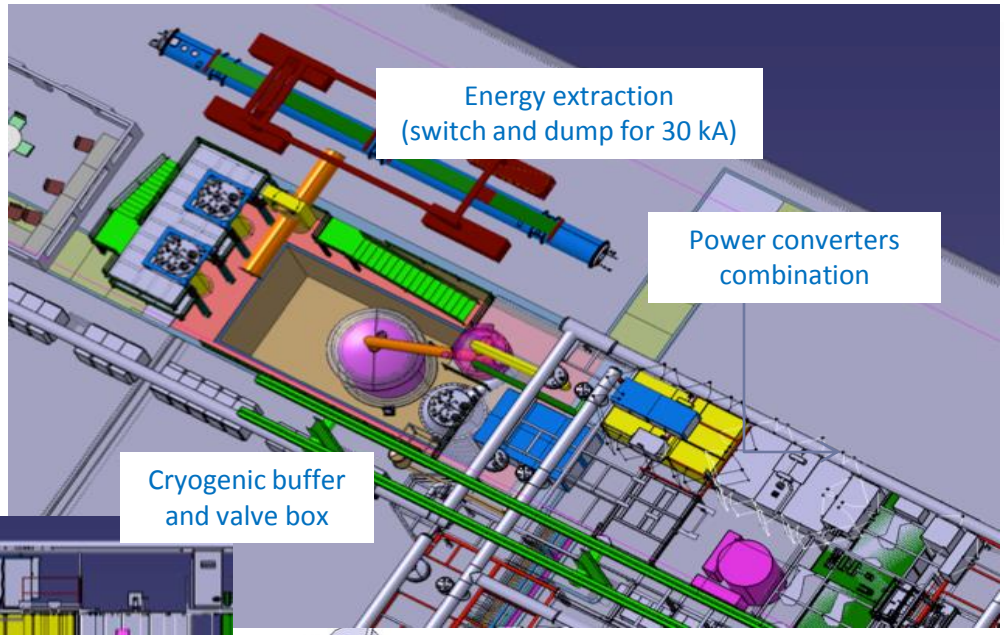
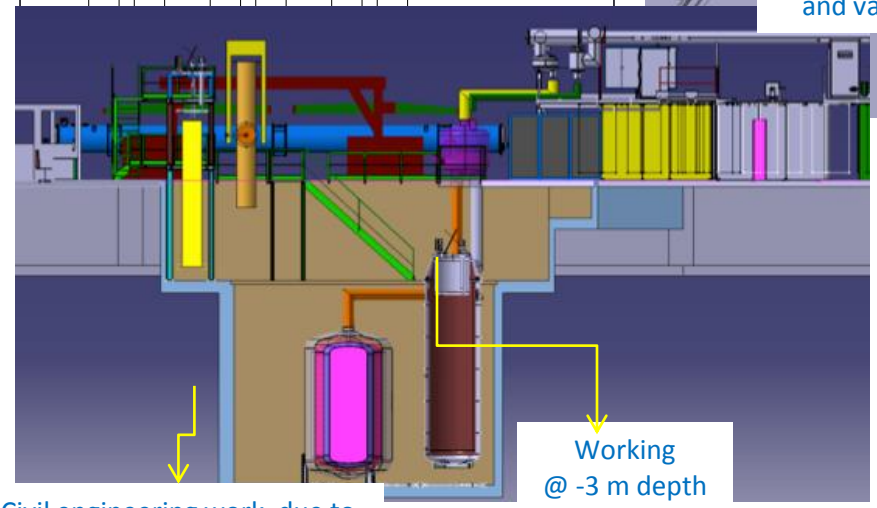
On going INFRASTRUCTURE Upgrade

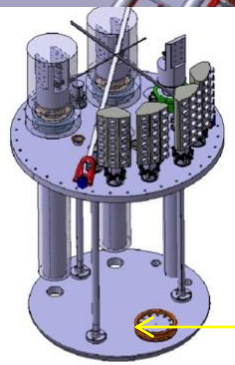




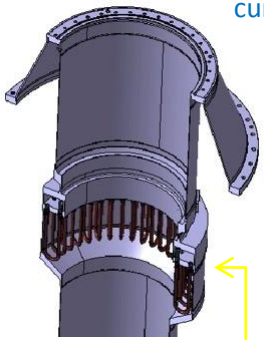


Civil engineering work, due to the limitation of the building ceiling @ 5.05 m

CE work started in Jan. 2015 till Aug 2015

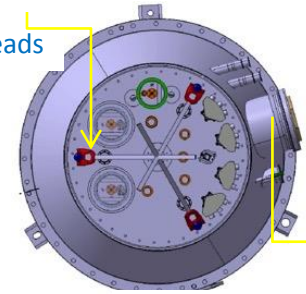


Lambda plate



Integrated He heat exchanger

30 kA current leads



Cryogenic connection on the side

The User Selection Panel

remained the same

TNA User Selection Panel

was established to select users based on the scientific quality and feasibility of their proposals. The panel is composed of representatives of the facility, of the EuCARD-2 project (M. Bajko) and also international experts in the field of magnets and instrumentation

Dr. Luis Garcia Tabares (SP)

Dr. Vinod Chohan (CH)

Aproved MagNet projects

we have 1 new

1.FOSxCRYO (Fiber Optic Sensors FOR CRYogenic ApplicatiOns and Superconducting Magnets)
Project leader: Dr. Andrea Cusano UNIversity of Sanio (IT)
7 members (It + Hu)
> 400 access requested

ongoing

2. ThMo_Nb_3Sn (NUMERICAL MODELLING OF NB_3SN MAGNETS FOR PARTICLE ACCELERATORS)
Project leader: Dr. Fabrizzio Bellin UNIversity of Udine (IT)
5 members (IT+ USA)
> 400 access requested

ongoing

3. AMIT_Mag HeBP (AMIT Magnet Helium Bath Performance)
Project leader: Dr. Fernando Toral CIEMAT (SP)
5 members (all SP)
200 access requested

finished

4. ContSysTempSens **(Control System for Temperature Sensors)**
Project leader: Dr. Vardaine Szarka Angela University of Debrecen (HU)
4 members (all HU)
>400 access requested

new. started

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ContSysTempSens @ MagNet

ContSysTempSens (Control System for Temperature Sensors **)**

Project leader: : Dr. Vardaine Szarka Angela University of Debrecen (HU)
4 members (all HU)
>400 access requested

Aim of the project is development and realization of hardware and software to monitor sensor signals, in an automatic and reliable way, in order to verify the integrity and correct cabling of the whole equipment instrumentation.
The aim is to simplify the way to perform the measurements, allowing operators to perform electrical tests in a fast and effective way, as well as to keep track of reporting information.

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Status of the WP 9 MagNet in numbers

Nearly 60 % of the planned accesses has been given

- Abouth 1136 (1920) accesses given
- 4 (8) projects
- 8 universities and institutes
- 4 countries (IT, SP, HU, USA)
- 15 (64) users
- 25 travels to CERN

1st access granted 20th of November 2013

- Administration is representing more work load than expected but now is going well. Thanks the team of SVETLOMIR! (Livia and Sabrina)
- Access to CERN is more complicated than expected . No shuttle service is assured by CERN to the facility !!!!

Publications

1. *Fiber Bragg Grating Sensor as Valuable Technological Platform for New Generation of Superconducting Magnets, A. Chiuchiollo et all x* Mediterranean Photonics Conference (Trani – Italy)
2. *Structural Health Monitoring of Superconducting Magnets at CERN using Fiber Bragg Grating Sensors, A. Chiuchiollo et all x* Fotonica 2014 (Napoli - Italy)
3. *Cold Test Results of the LARP HQ02-b magnet at 1.9 KH. Bajas et all for ASC 2014*
4. *Fiber Optic Cryogenic Sensors for Superconducting Magnets and Superconducting Power Transmission lines at CERN, A. Chiuchiollo et all x*II International Conference on Applications of Optics and Photonics (Averio - Portugal)
5. *Quench analysis of high current density Nb3Sn conductors in a racetrack coil configuration H. Bajas et all for ASC 2014*
6. *Fiber Bragg Grating Sensors Based Monitoring System for Superconducting Accelerator Magnets, A. Chiuchiollo et all x*European Workshop on Structural Health Monitoring (Nantes – France)
7. **Fiber Bragg Grating Cryo Sensors for Superconducting Accelerator Magnets** Photonics Journal, IEEE , Volume: PP , Issue: 99 , DOI: 10.1109/JPHOT.2014.2343994 , Publication Year: 2014
8. *In press*…..Analysis of the quench propagation along Nb3Sn Rutherford cables with the THELMA code. G. Manfreda[1], F. Bellina[1] and H. Bajas[2]
9. *In press* …..Development of a superconducting magnet for a compact cyclotron for radioisotope production (AMIT) Luis García-Tabarés, Pablo Abramian, Jesús Calero, Jorge R. González, José L. Gutiérrez, Javier Munilla, Diego Obradors, Fernando Toral (CIEMAT), Rafael Iturbe, Leire Mínguez (ANTECSA), José Gómez, Elena Rodilla (Trinos Vacuum-Projects), Marta Bajko (CERN)

Thanks for your attention