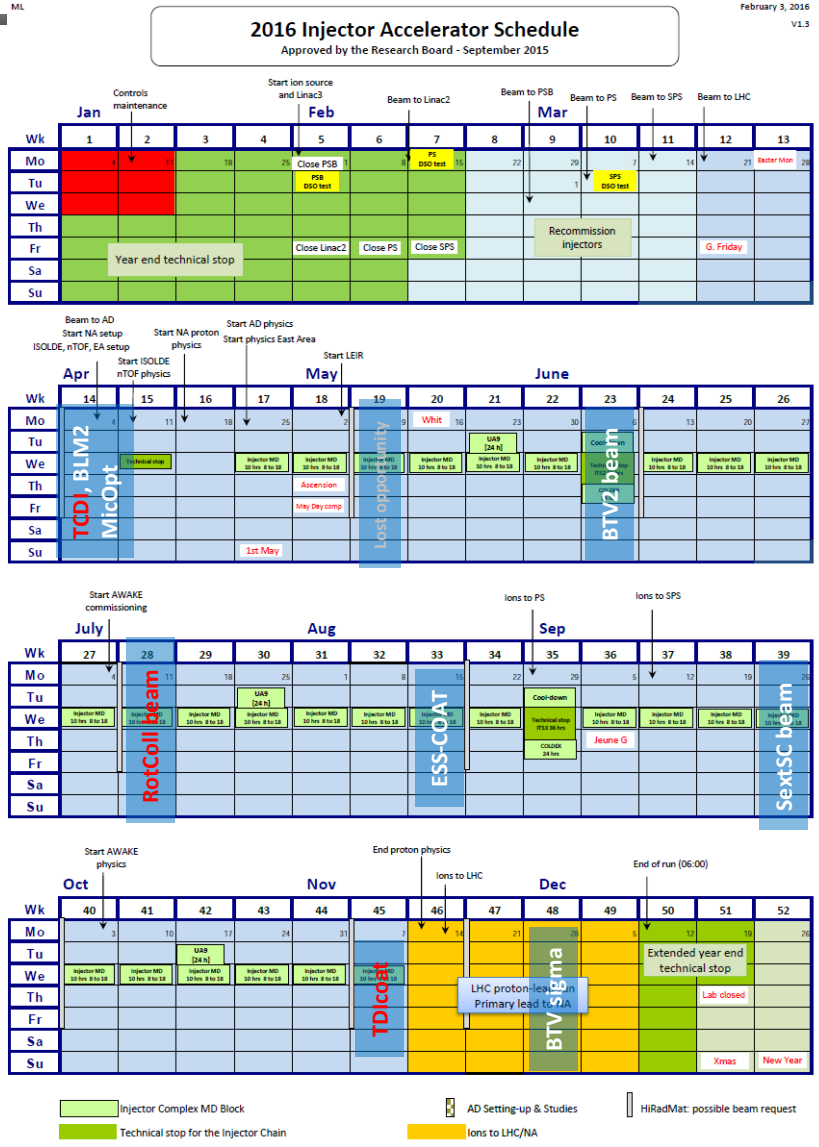
WP9 - HiRadMat

A. Fabich

EuCARD-2 annual meeting 2017, Glasgow

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

2016 recap



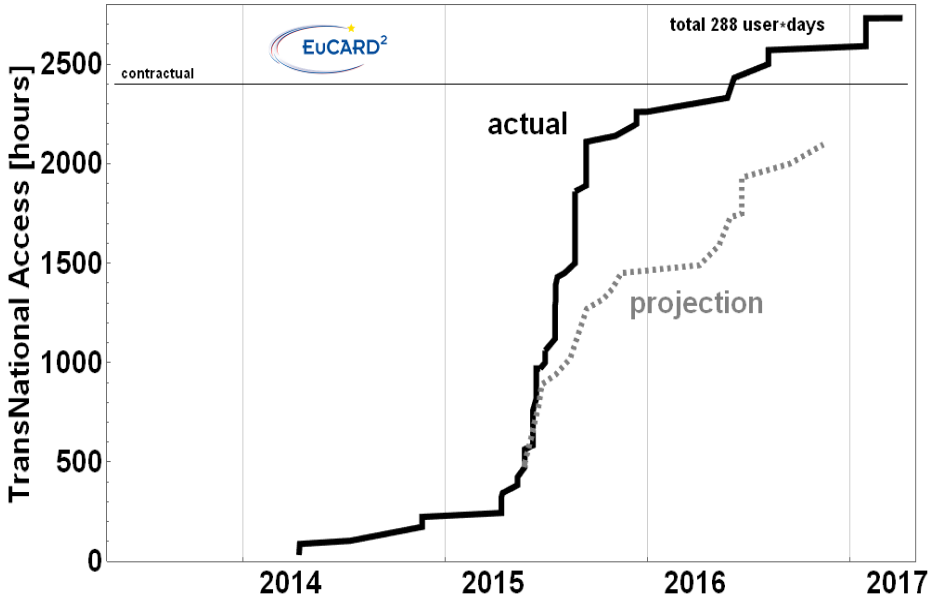
- Smooth start
  - TCDI progressed fast
  - Stopped by intensity limitations in the accelerator machine
- Accommodating low-intensity experiments for the rest of the year
- 3 experiments shifted to 2017

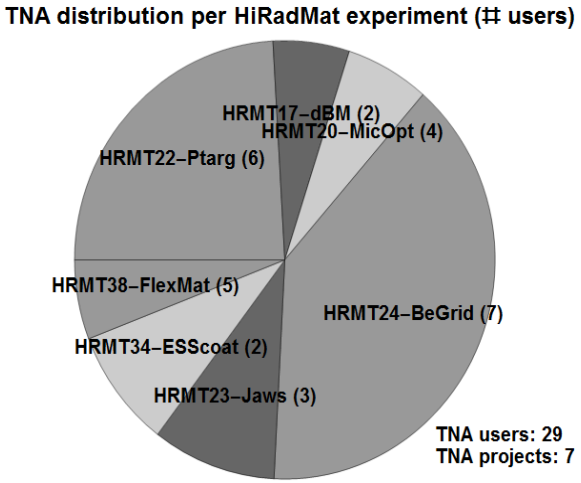
HiRadMat
High-Radiation to Materials

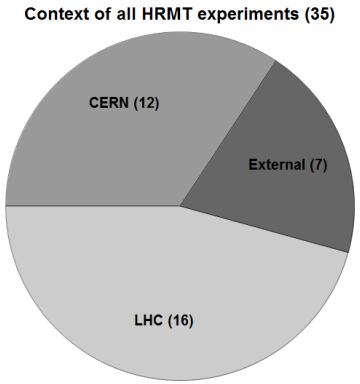
Transnational Access

EU FP7 finances travel/accommodation for HRM users external to CERN.

Great support from CERN-EU office, particularly Sabrina!







- 288 user days at CERN enabled through HiRadMat in FP7

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Scientific publications from HiRadMat tests

- E. Quaranta et al., Towards optimum material choices for HL-LHC collimator upgrade, UTCWEPMW031, IPAC'16 (referring to HRMT23-Jaws)
- S. Burger et al., Scintillator and OTR screen characterization with a 440 GeV/c proton beam in air at the CERN HiRadMat facility, MOPG78, IBIC'16 (referring to HRMT33-BTV2) Presentation by Marlene tomorrow
- C. Torregrosa et al., The HiRadMat 27 experiment: Exploring high-density materials response at extreme conditions for anti-proton production, THPMY023, IPAC'16
- Summary of the HiRadMat User Day 2016, EDMS 1709921

HiRadMat User Day

Work shop at CERN in June 2016, supported by EuCARD2

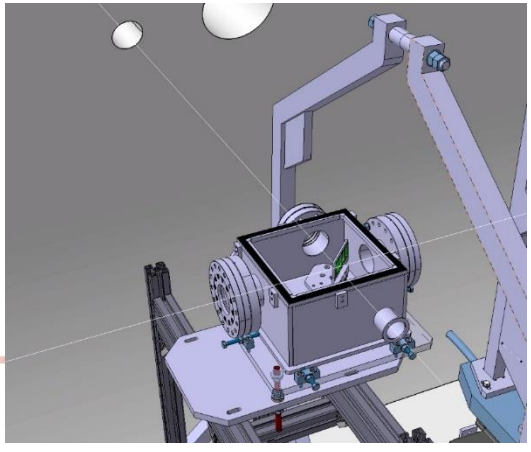
~50 participants

with TNA users from Czechia, Germany, Norway, Sweden, Switzerland, UK and USA

- Follow-up the scientific achievements from former experiments
- Identification of additional research subjects additionally to the ones already established.
- Assessed wish list of facility upgrades
  - Some implemented within recent months
  - E.g. BTV screen for beam monitoring at experiment possible from this year
  - Larger items like physical separation of HiRadMat operation and LHC filling is financially difficult

Detailed summary in EDMS 1709921

BTV + containment



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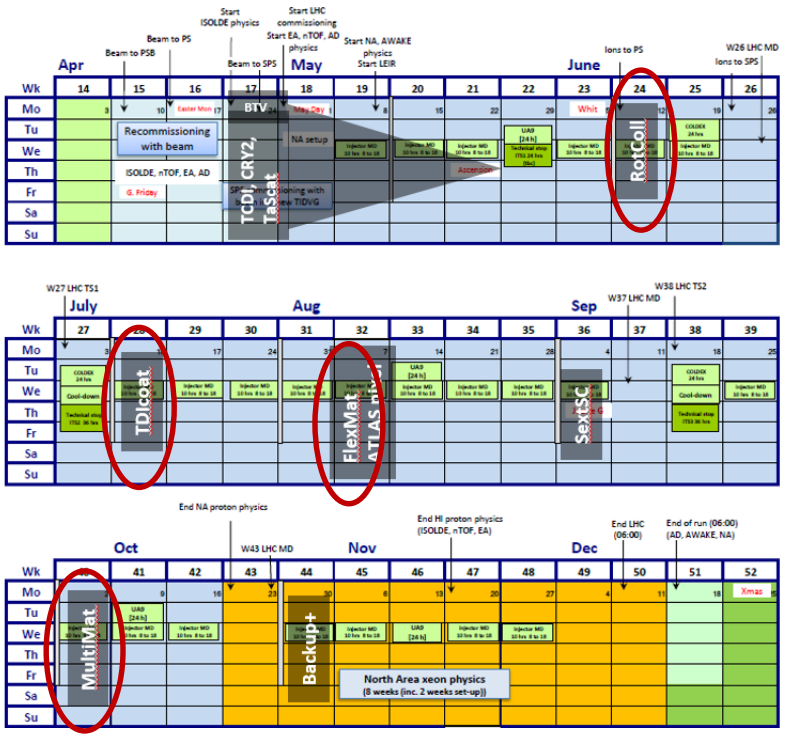
Tests in 2017



4 experiments with TNA

- FlexMat (GSI): the dynamic response of pre-irradiated carbon composites
- ATLASpixel (INFN): LHC detectors, damage limit

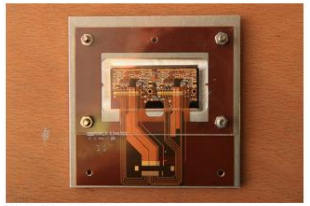


Fig.1: Pixel Module.

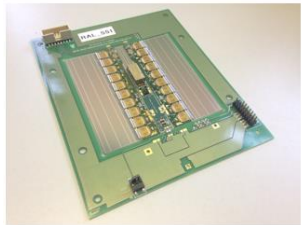
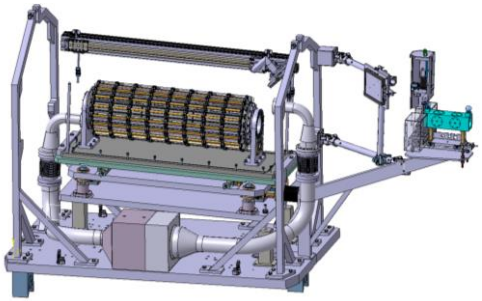


Fig.2: Strip module.

MultiMat collimator materials



TDIcoat: testing LHC collimator coating

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Summary

- HiRadMat had a limited and still successful beam year 2016.
- HiRadMat delivered more than 2400 TNA-hours to 7 external user teams.
- HiRadMat and TNA users are prepared for the season 2017 and beyond.