

Super-FRS Diamond & PDC DAQ

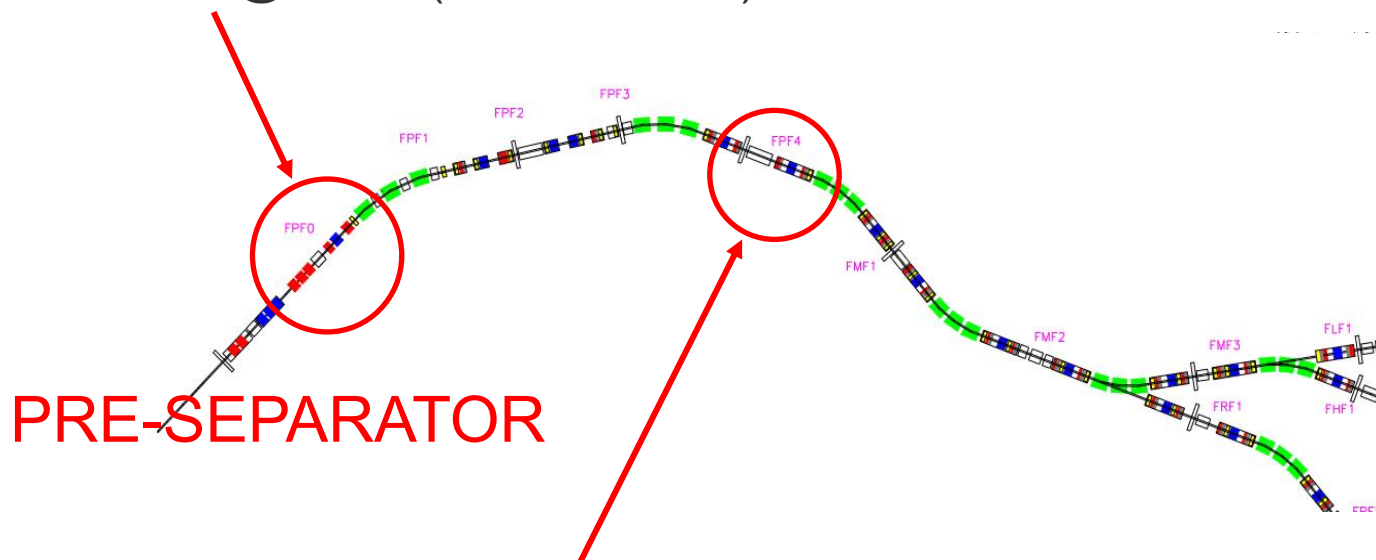
Matteo Alfonsi

on behalf of C. Nociforo, M. Kiš, M. Träger, J. Galvis Tarquino, R. Hettrich,
R. Singh, R. Haseitl, R. Lonsing, T. Hoffmann

GSI Helmholtzzentrum für Schwerionenforschung, Darmstadt, Germany

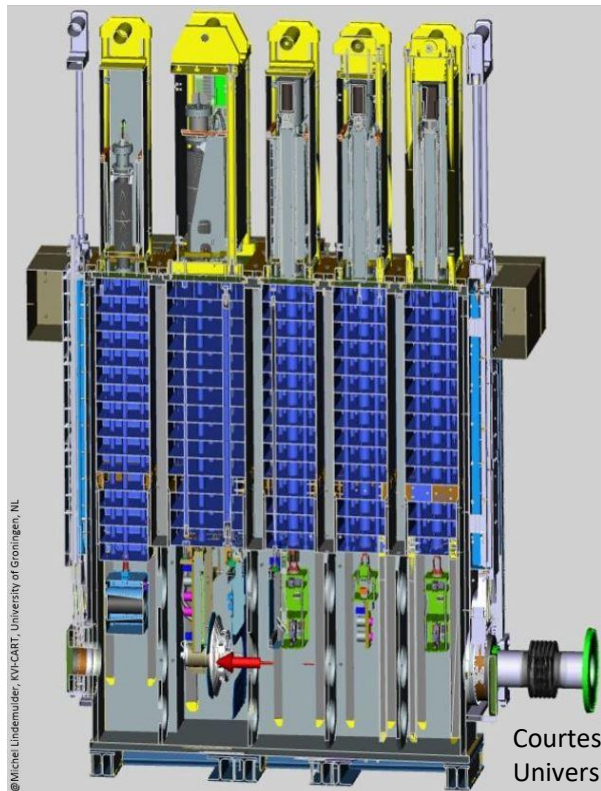
FPF0 & FPF4 CVD-DD & PDC

- CVD-DD @ FPF0 (PSP 2.4.6.1.9/10)
- PDC/DIA @ FPF0 (PSP 2.4.6.1.1)



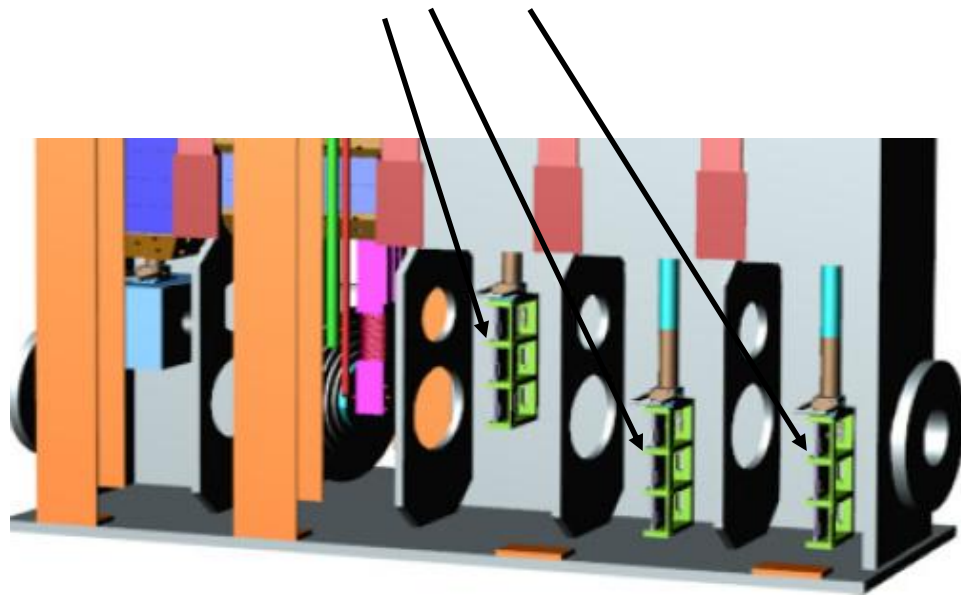
- CVD-DD @ FPF4 (PSP 2.4.6.1.9/10)

Target area CVD-DD & PDC



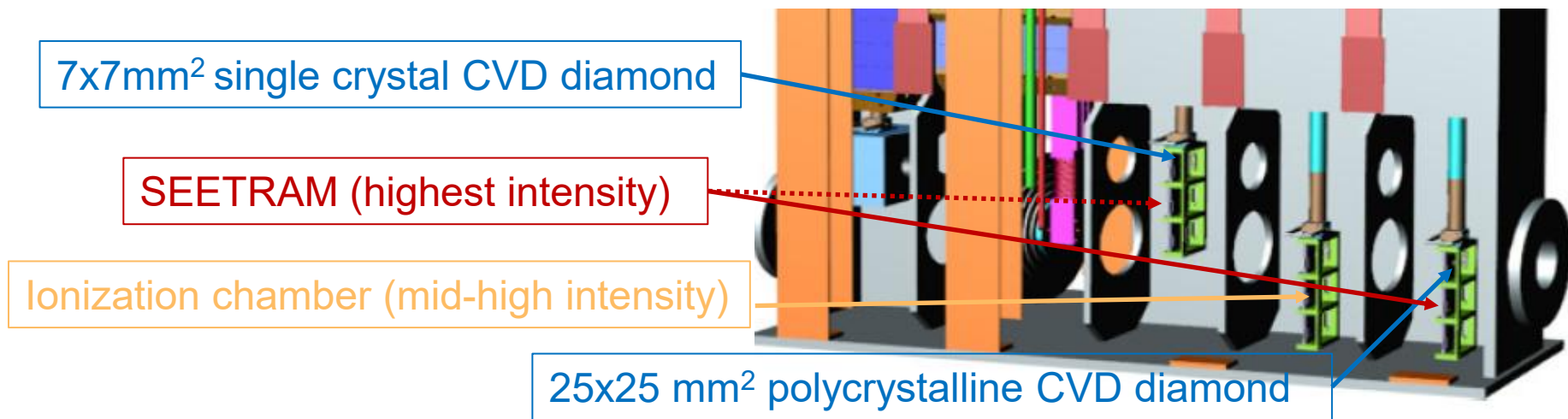
Courtesy of Michel Lindemulder, KVI-CART,
University of Groningen, Netherlands

Slots for beam diagnostics devices



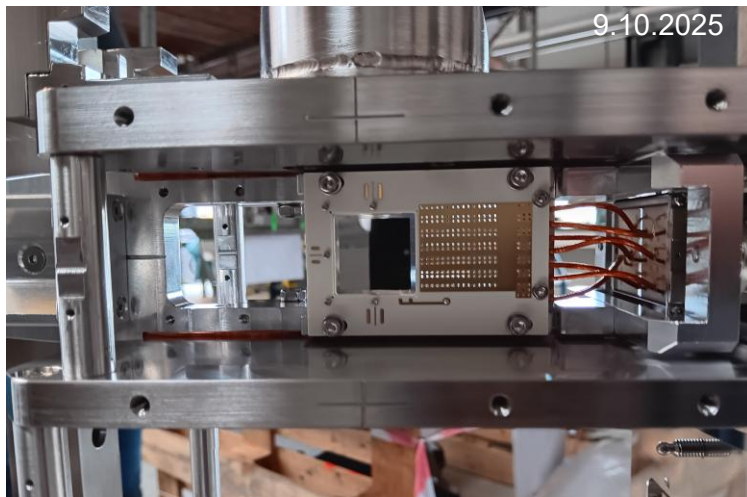
Intensity monitor concept

- Intercalibration between detectors:
 1. Single crystal CVD diamond calibrates the larger area polycrystalline
 2. The polycrystalline CVD diamond calibrates the Ionization Chamber (for mid-high rate monitor) and the SEETRAM (for the highest intensity)

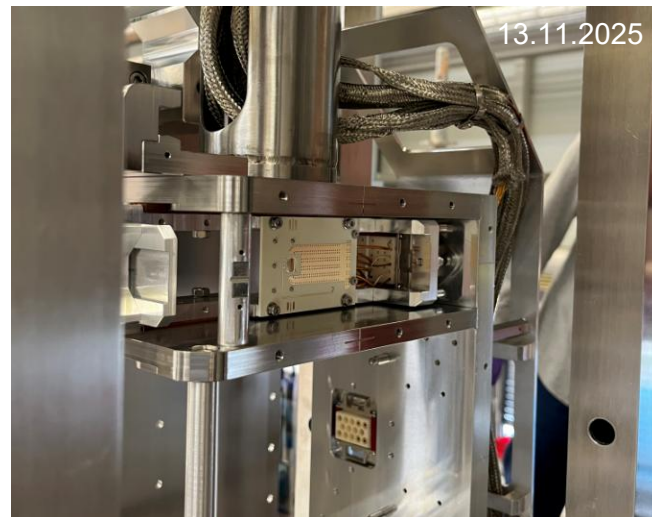


- CVD-DD: 25x25 mm² poly-crystalline diamond, 5 horizontal strips & guard ring
- PDC/DIA: 7x7 mm² single crystal diamond, center/corners electrodes

Polycrystalline diamond mounted on Ladder 1

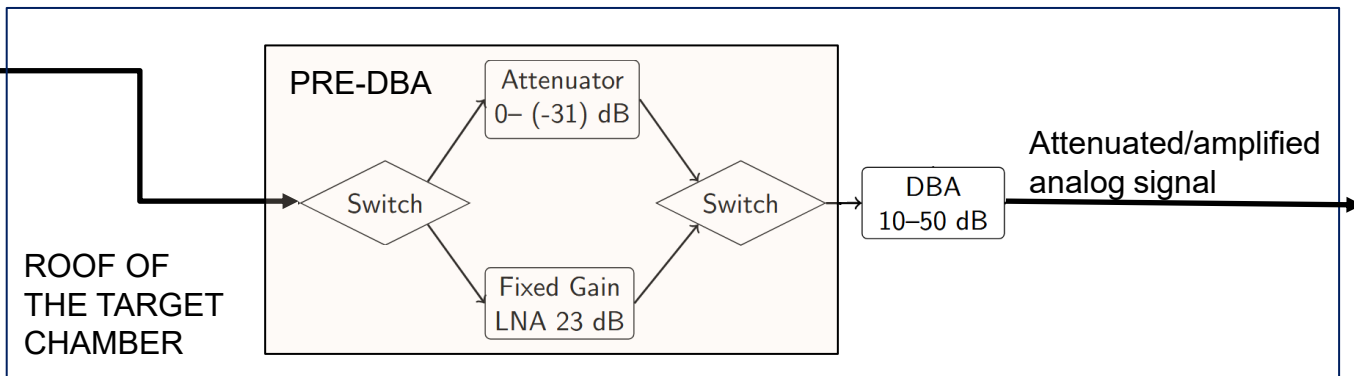
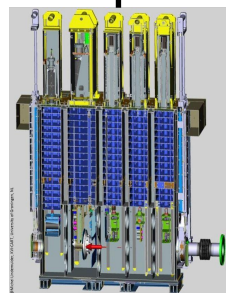


Single crystal diamond mounted on Ladder 3



- To cover ions species from C to U, a ~ 70 dB dynamic range remote controllable attenuation/amplification chain has been developed with the company Greenstream (M. Kumm) on the basis of the DBA amplifier already used at GSI for diamond detector
- Electronics produced is under test (R. Singh)
- Integration in the FAIR control system under development (R. Haseitl)

Analog signal from
diamond detectors



Rack
DAQ
in
Niche 1

- Analogic signals are discriminated and counted in the SIS8800 + SIS8980 modules from Struck (μ TCA components) and integrated into LASSIE by the BEA group
- The scaler module provides also the discriminated signals as NIM outputs. A copy of the output discriminator will be provided to the NUSTAR DAQ (experiments)
- The SEETRAM or the ionization chamber readout follows the same scheme, the new digitizer will be provided by the BEA group

