SP F kick-off meeting

D005: Install the multichannel broadband spectrometer on TOMAS

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FZJ

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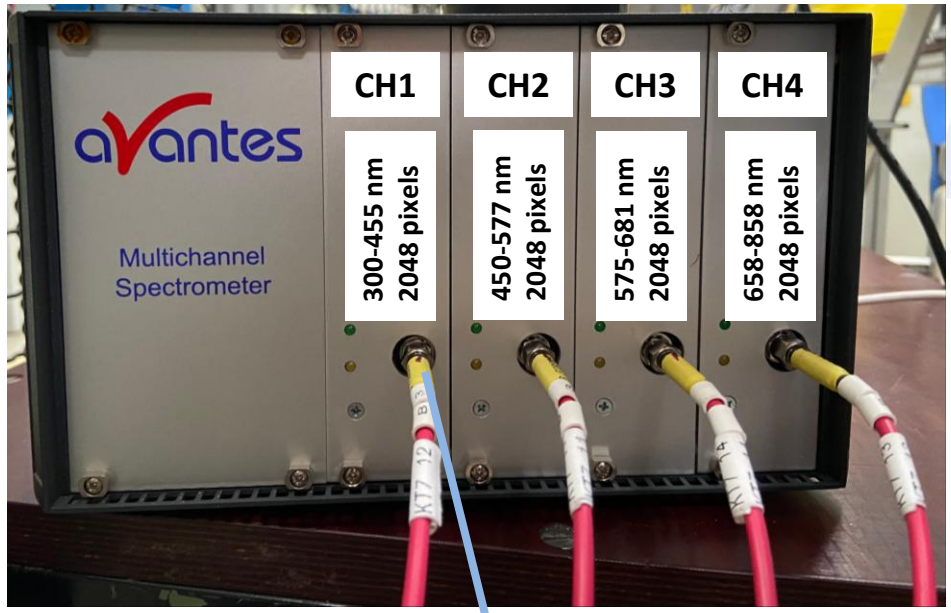
Avantes multichannel broadband spectrometer

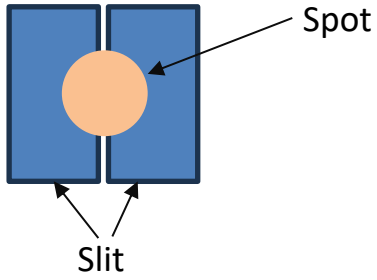
Deliverable 2026:
Adaptation of the multichannel broadband spectrometer for characterization of TOMAS wall conditioning plasmas

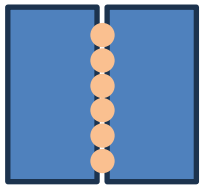
Application – monitoring:

- Plasma conditions
- Impurities (e.g. O)
- Material composition



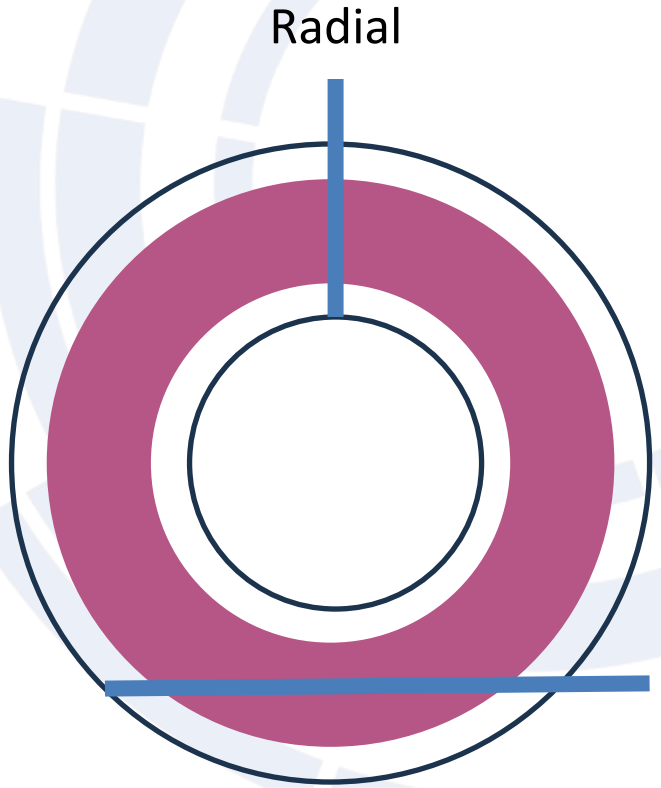
Typical spectrometer





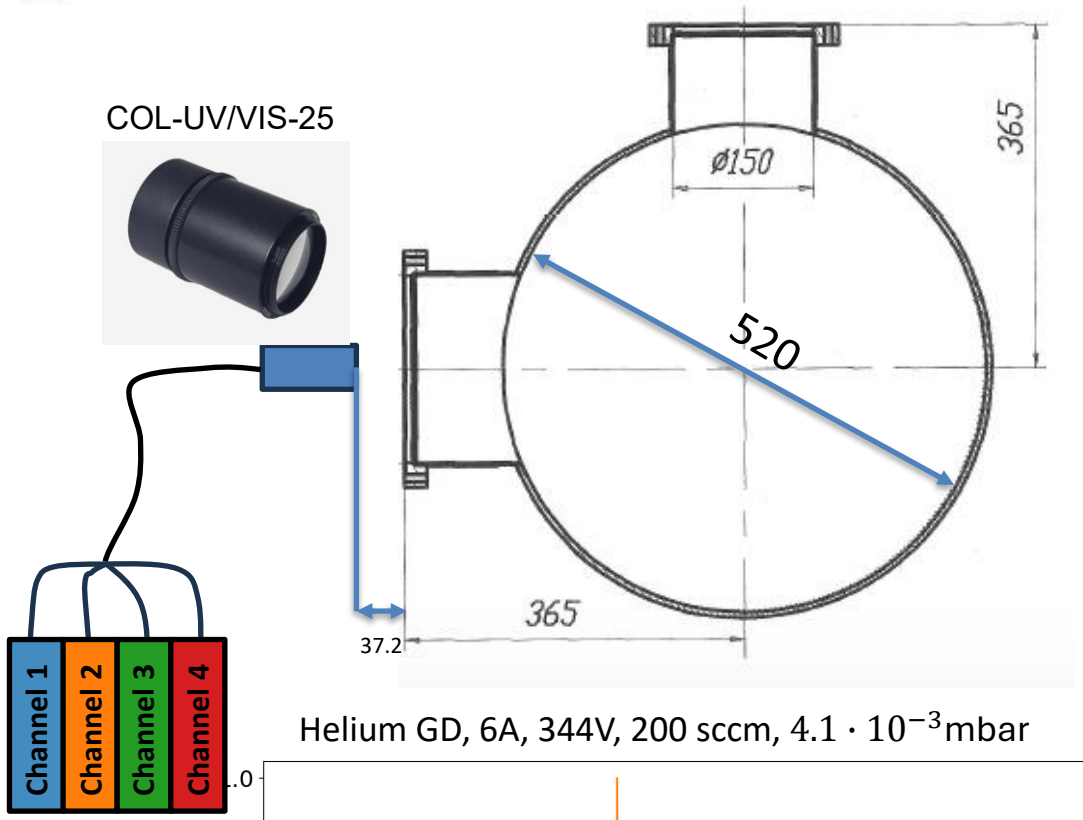
Special fibers manufactured for this spectrometer

Possible lines of sight:

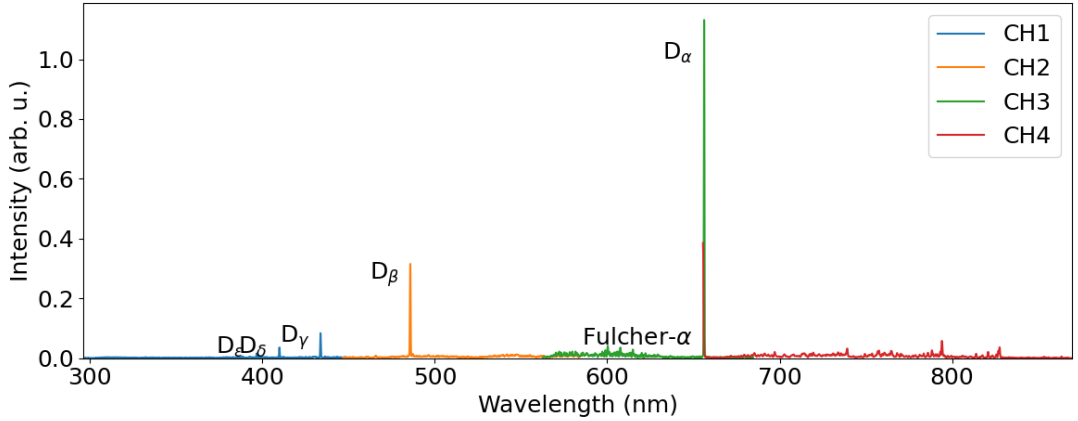


First spectra measured at TOMAS

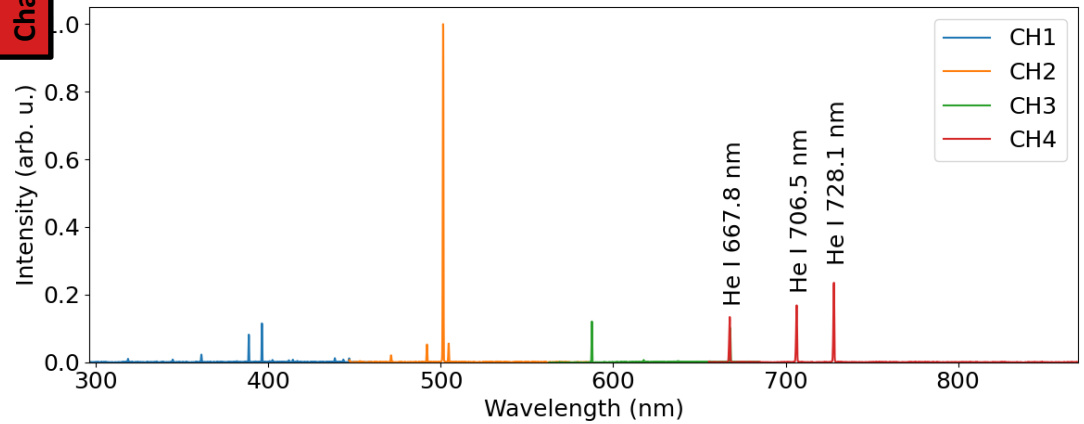
COL-UV/VIS-25



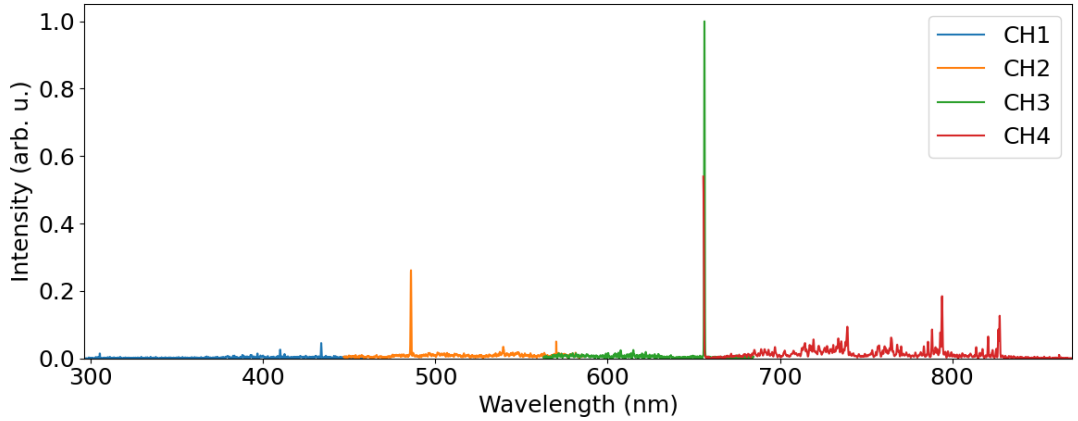
Deuterium ECRH plasma
Pressure: $2.18 \cdot 10^{-4}$mbar,
Input Microwave power (2.45 GHz) of ~ 2 kW,
Magnetic field ~ 80 mT



Helium GD, 6A, 344V, 200 sccm, $4.1 \cdot 10^{-3}$mbar



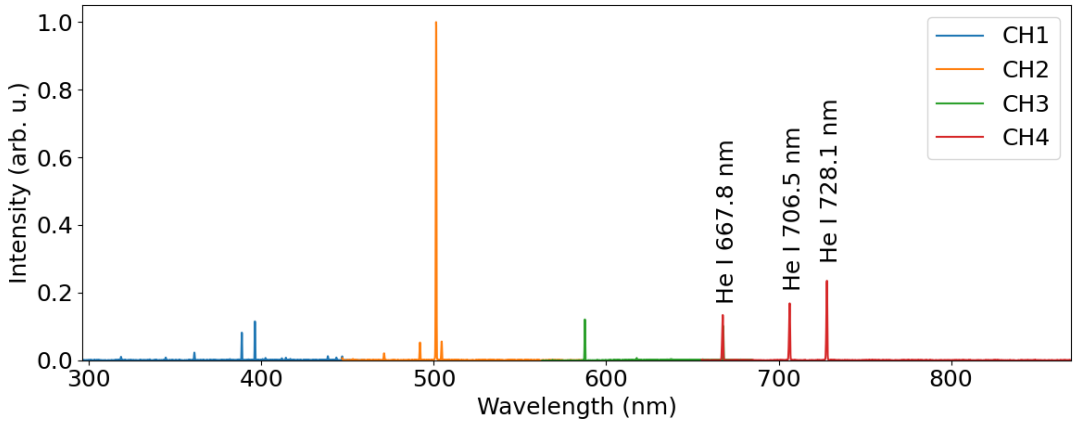
Deuterium GD, 6A, 491V, 200 sccm, $4.3 \cdot 10^{-3}$mbar



Hyperspectral camera Specim IQ in He plasmas

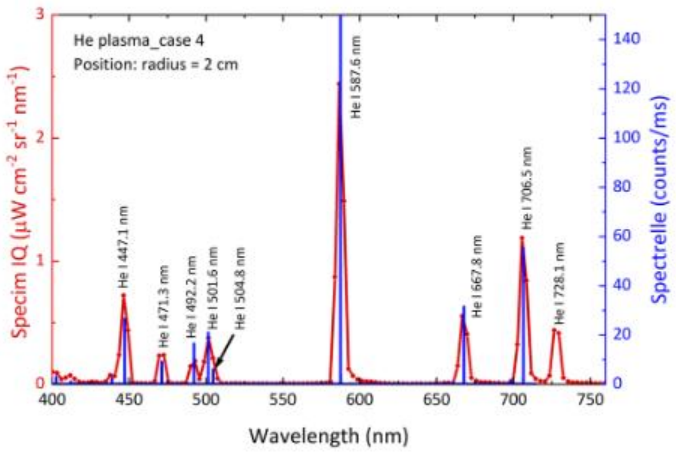
TOMAS Avantes Broadband

Helium GD, 6A, 344V, 200 sccm, $4.1 \cdot 10^{-3}$mbar



PSI-2

first application of Specim IQ



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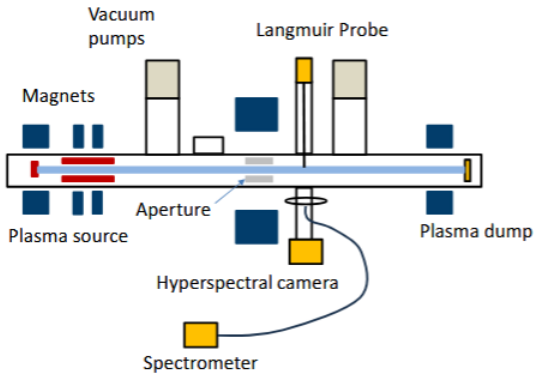
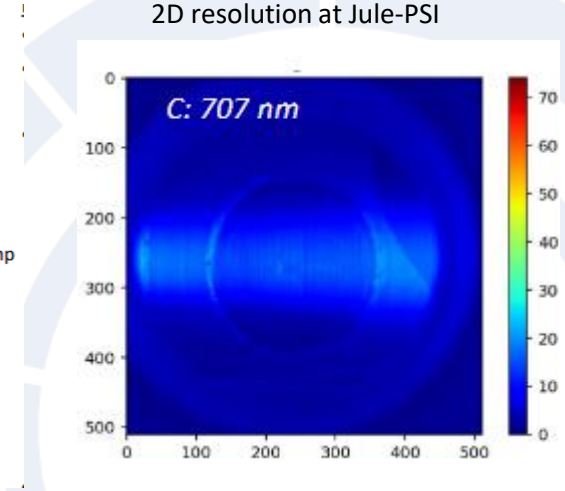
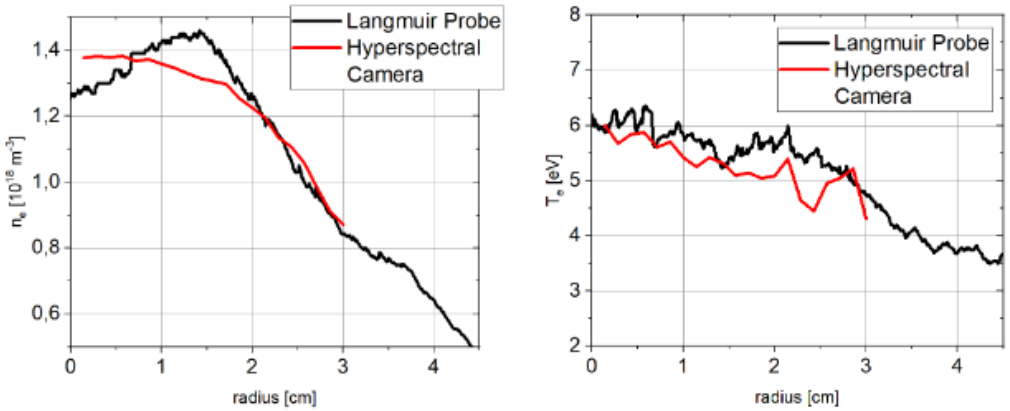
Jule-PSI: PFMC 2025 Poster M. Reinhart



Schematic view of JULE-PSI with plasma diagnostics

2D resolution at Jule-PSI





Radial profiles of n_e and T_e by Langmuir Probe and Hyperspectral Camera