

Motional Stark Effect Imaging on ASDEX Upgrade.

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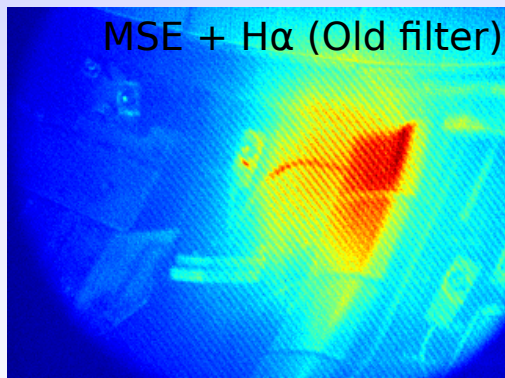
Background - Zeeman split H α

Thursday 18th: No beams, so fitted H α filter to check polarised background is actually H α .

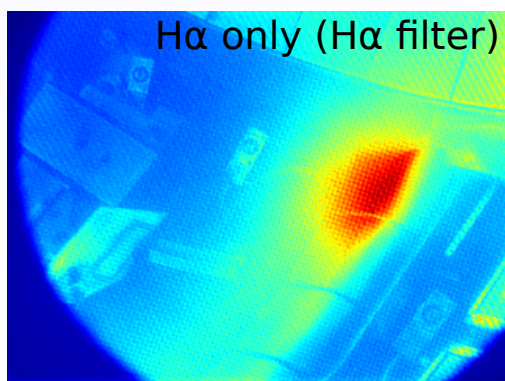
Polarised signal is still present with H α filter and is almost completely excluded by the proper MSE filter (which blocks H α).

So it probably is Zeeman split H α and the new filter successfully stops contaminating the MSE measurements.

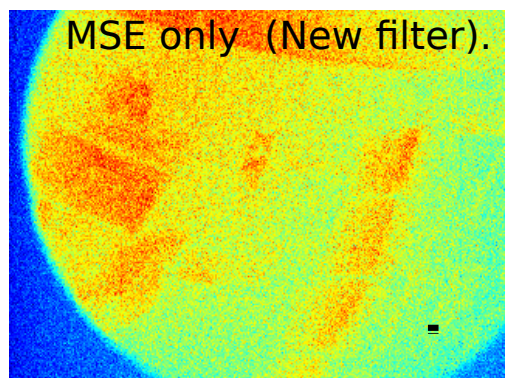
MSE + H α (Old filter)



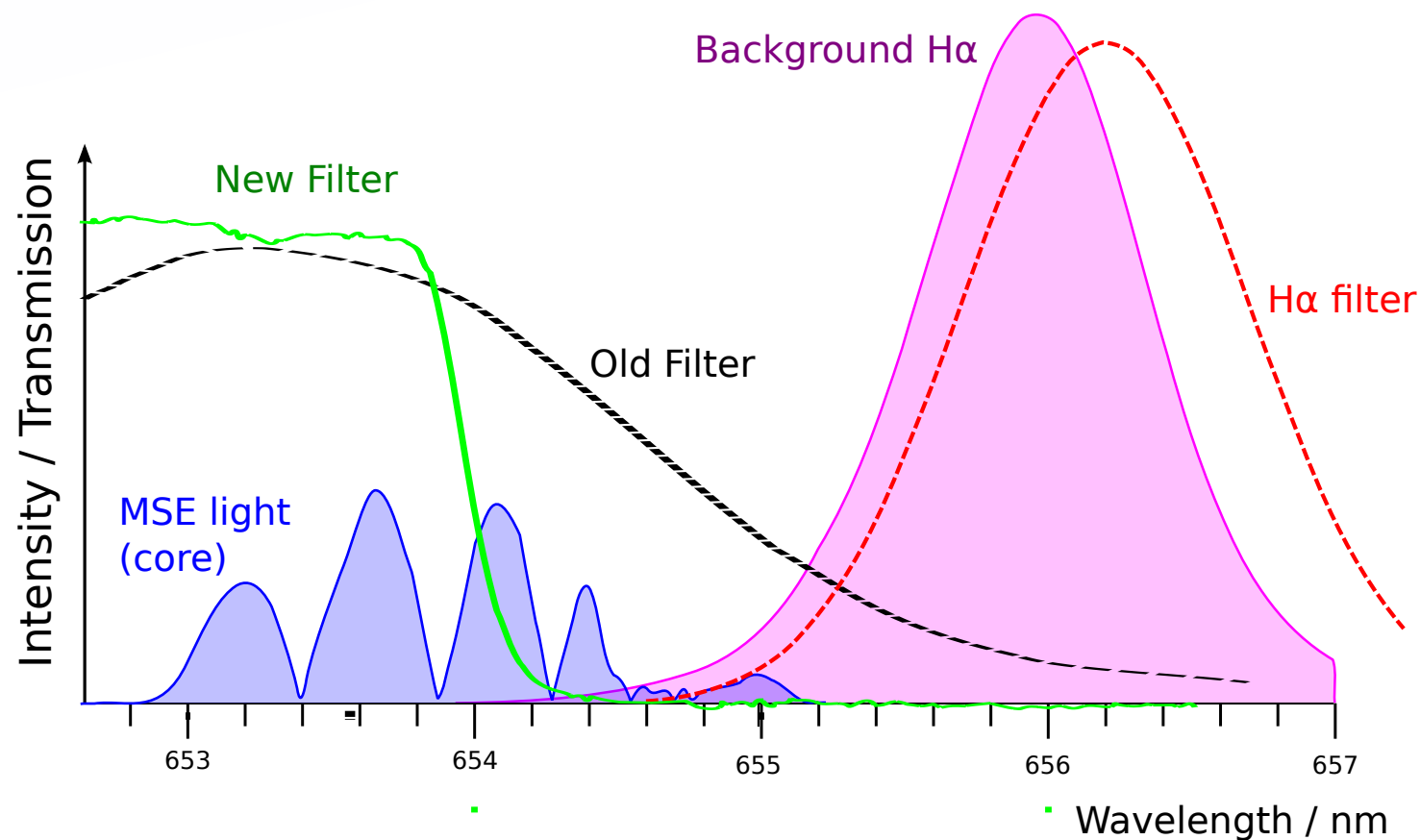
H α only (H α filter)



MSE only (New filter).



(examples from
different shots)

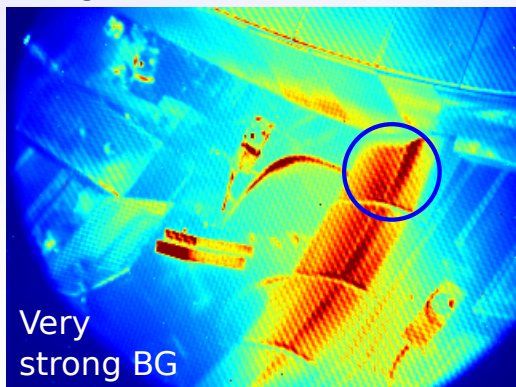


Reflections - Background $D\alpha$

The new filter also successfully removed the reflections contamination of the MSE data.

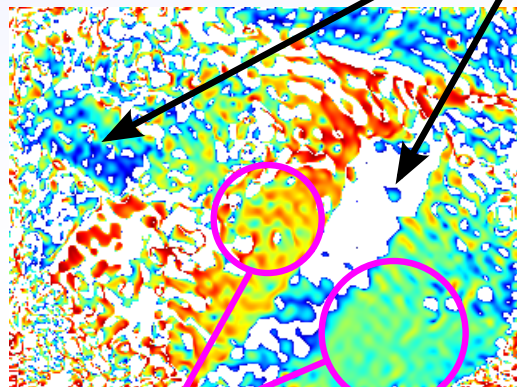
The worse case previously was during pellet injection:

Image:



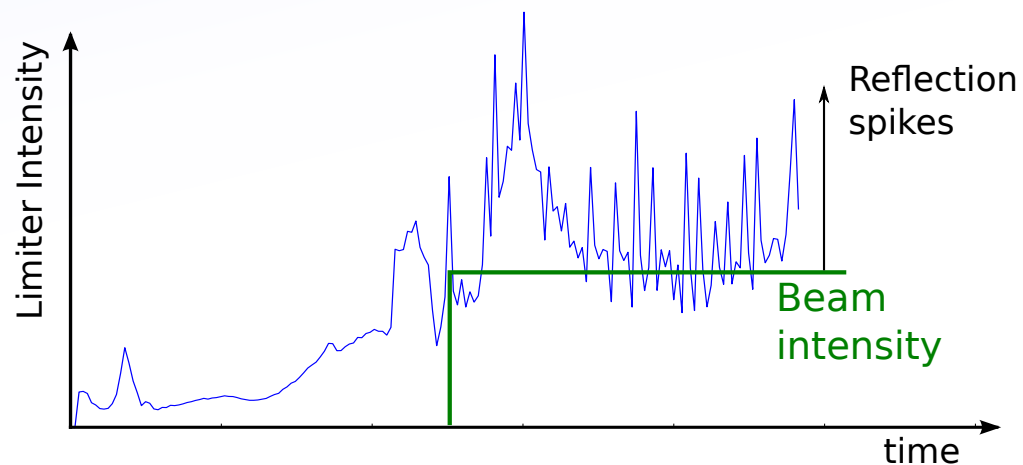
Very strong BG

Polarisation:

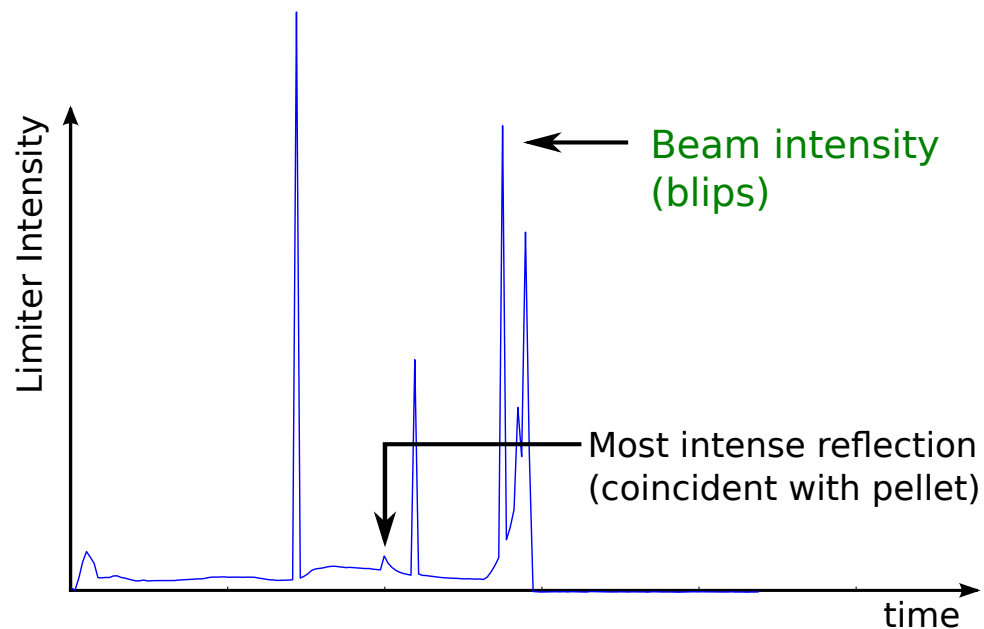
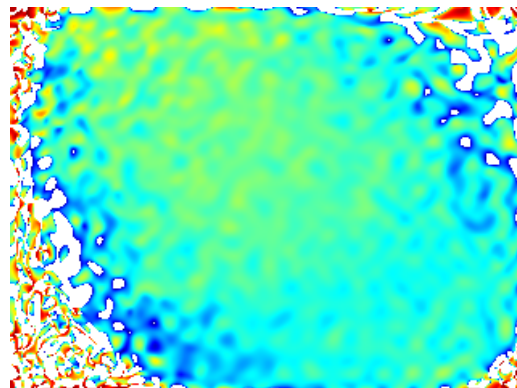
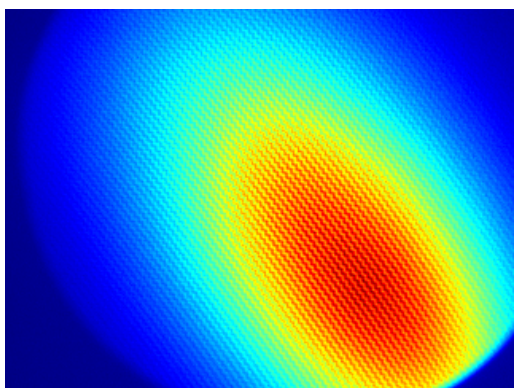


Good data from beam.

Contaminated by reflections.



With new filter:

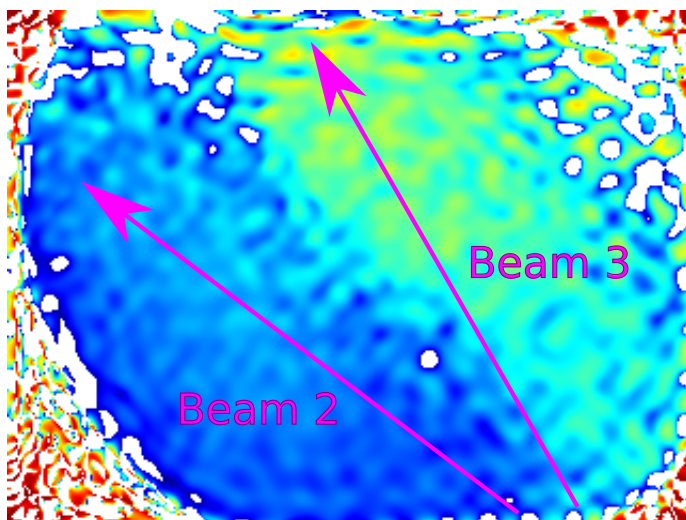
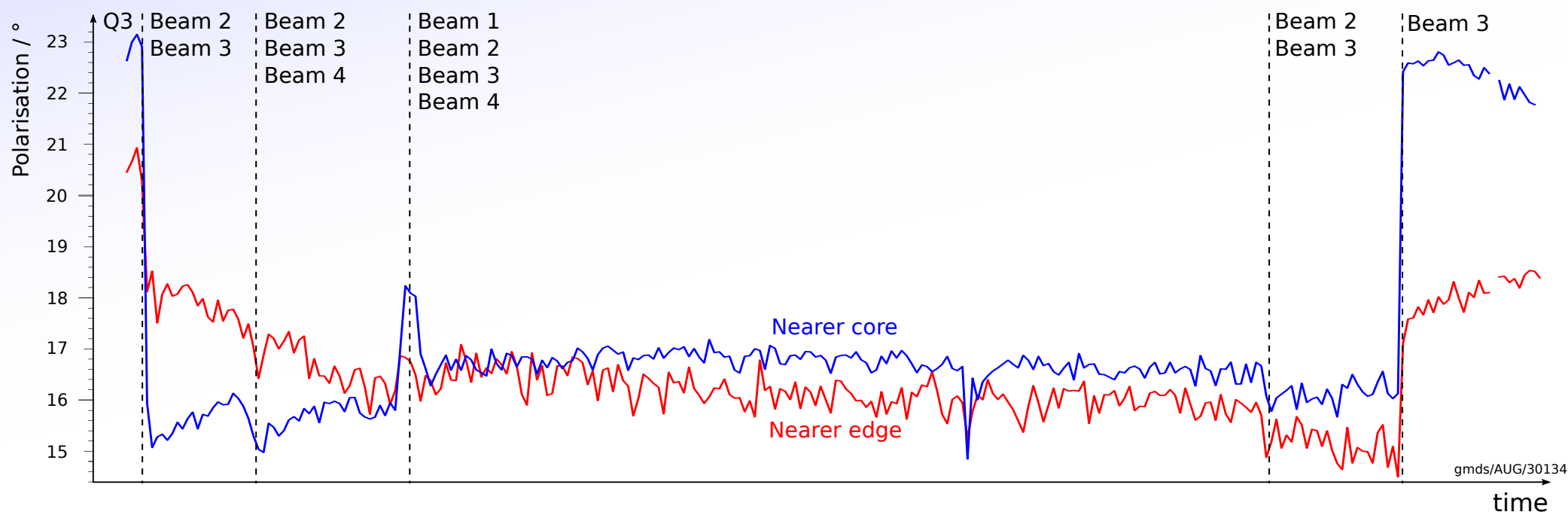


Data quality is much better. It now gives good measurements in all conditions whereas H-mode, pellets, detachment etc were all difficult before.

MSE data from last week

Used failed NBI assisted breakdown shots on Wednesday to understand and fix calibration problems. NBI was vary early in Ip ramp up, so the data may also help with the absolute calibration (later).

Collected a lot of good data during W-melting experiments on Thursday:



All H-Mode data is unfortunately mixed-beam.

In principle, it's still possible to use but it will take much longer to analyse as it requires knowing the beam geometry and attenuation accurately.

The beam information is actually much better separated than my model predicted - so need to improve the beam model and fit the beam waist and divergence.