
MSE-LIF on NSTX

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NSTX 5-year planning diagnostics mini-workshop

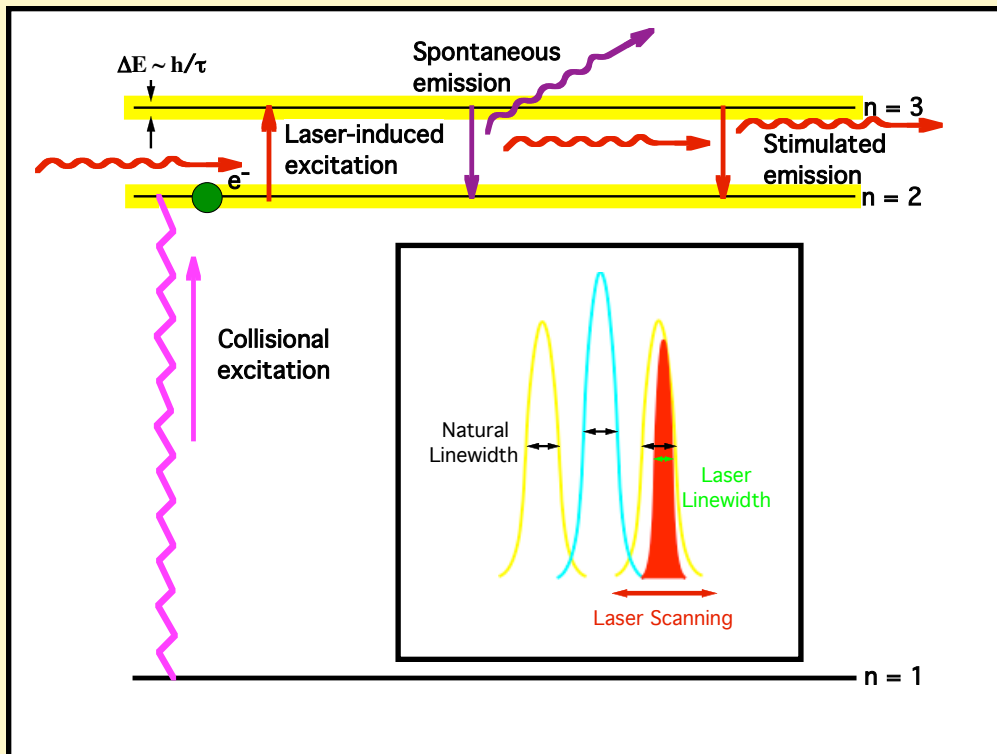
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PPPL



MSE with Laser-Induced Fluorescence

MSE-LIF uses laser to excite H-alpha transition in diagnostic neutral beam



Scheme relies on collisional excitation to $n=2$ by plasma

Excitation and emission frequencies Doppler shifted apart

Advantages

Field Range:

MSE measurements from ~ 0.001 T and up.

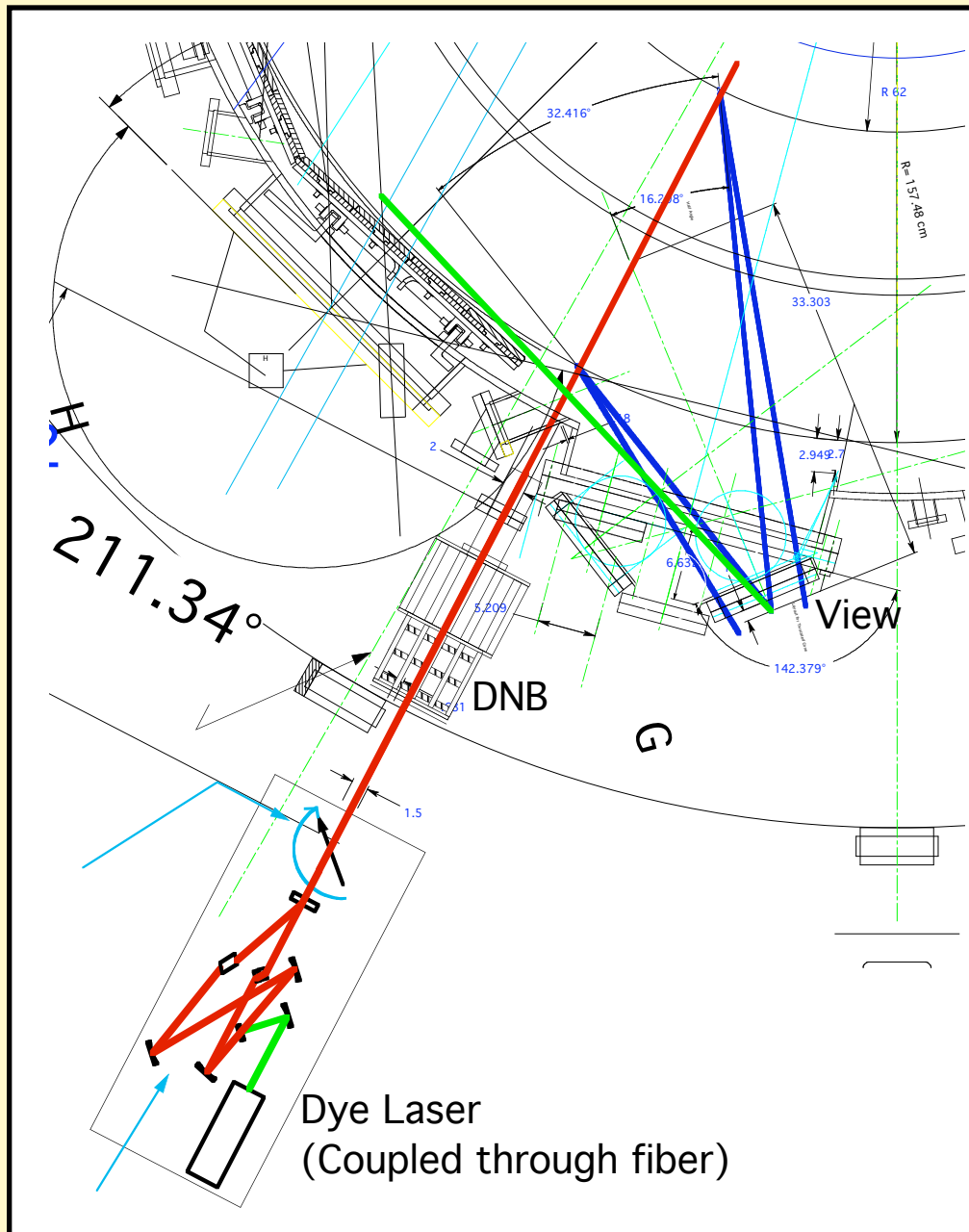
Measurement of $|B|$ as well as pitch angle:

Measure $|B|$, use to compute pressure, current profiles. eg: study current profiles without heating beams

Sensitivity to E_r :

Can use MSE-LIF in conjunction with existing MSE-CIF system on NSTX to determine E_r

MSE-LIF on NSTX



- Presently funded under DoE Diagnostics Development Program
- Diagnostic neutral beam, helicon plasma testbed and dye laser in lab. Plasma measurements soon.
- Renewal for FY08–10 possible: proposals due 4/07
- Plan: MSE-LIF ready to install on NSTX in FY09.