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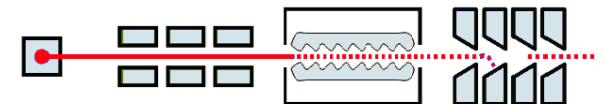


# Emittance Measurement Instrument for a High Brilliance $H^-$ Ion Beam

**Non—Destructive, Photo Detachment Emittance  
Measurements at the Front End Test Stand FETS at 3MeV**

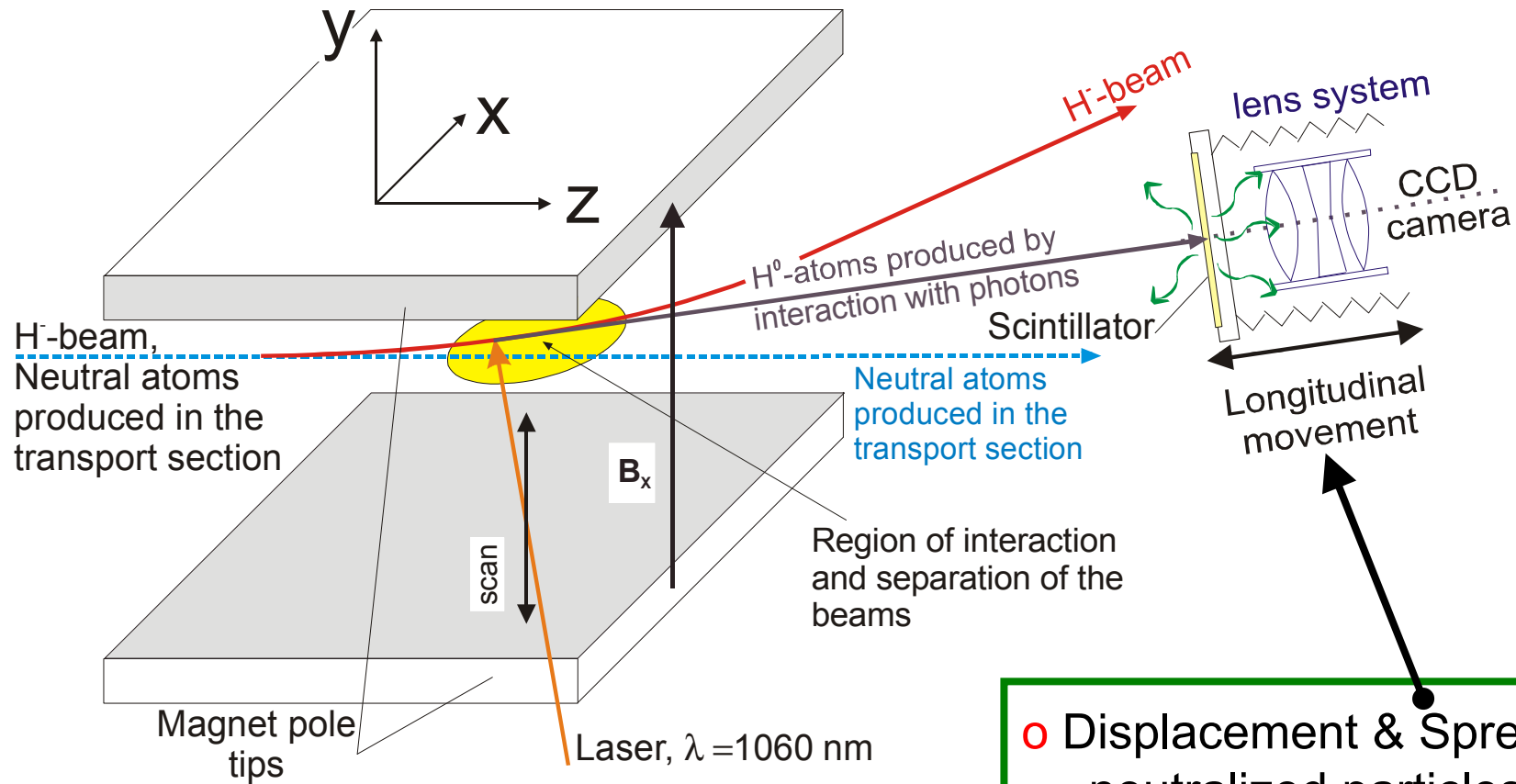
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**The Front End Test Stand Collaboration**



# Photo Detachment Emittance Measurement

Implemented Method:  $yy'$  in combination with movable particle detector



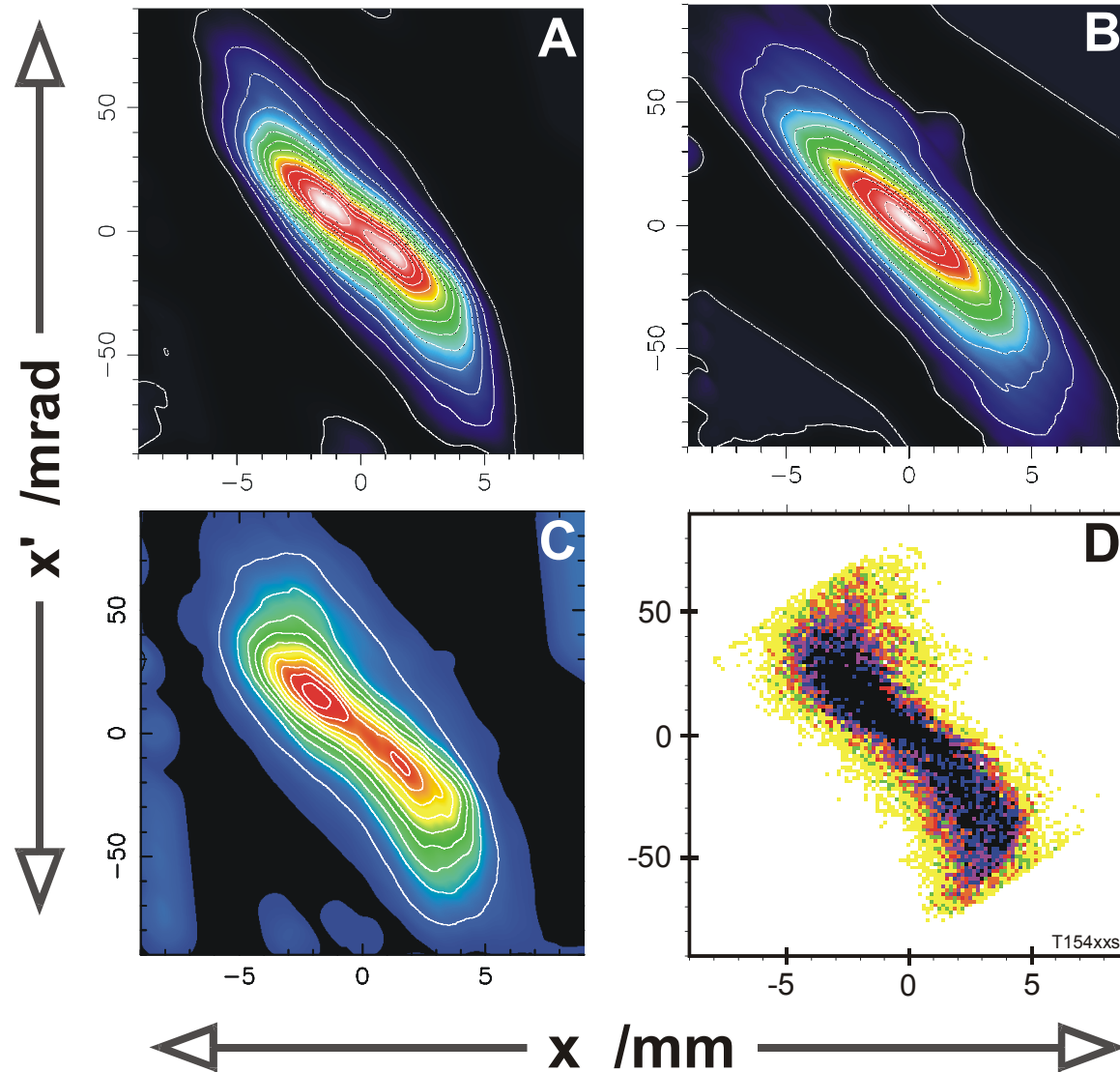
- + Non—destructive
- + Preferable for high power
- + On line measurements

- Displacement & Spread of neutralized particles  
→ Angle profile  $I(y')$
- 2D Beam distributions along the neutrals drift

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# Reconstructed Emittance using Maximum Entropy MEM

During the poster session I would like to discuss with you .....



- (A) 3 profiles
  - (B) 4 profiles
  - (C) 8 profiles
  - (D) Entrance emittance
- Reasonable results  
→ Phase advance

- First used in image reconstruction like e.g. astronomy
- Bayesian statistics
- Noisy data
- Incomplete data
- limited No. of profiles