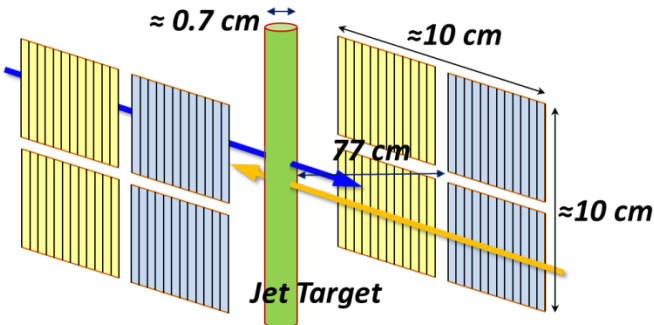


Experimental evaluation of the molecular hydrogen density in the HJet



Motivation:

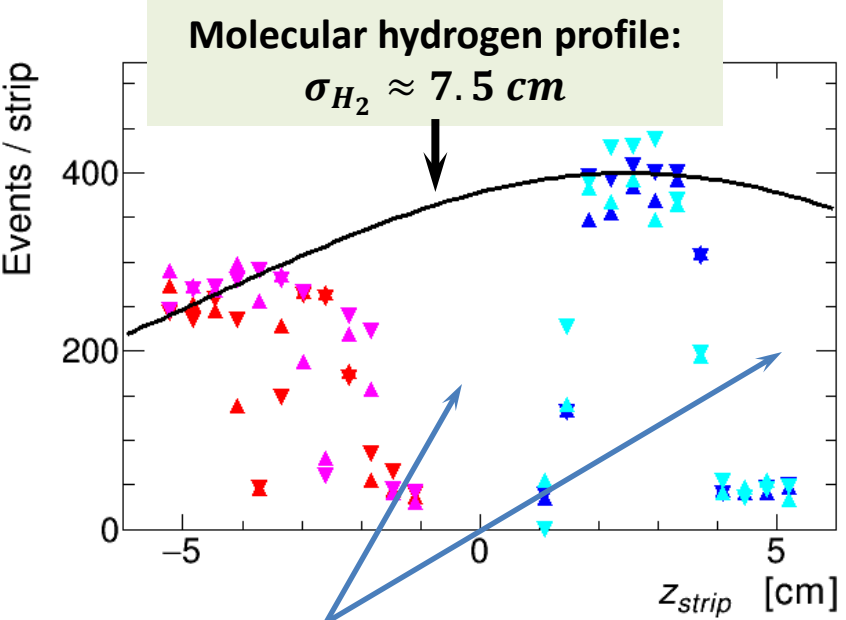
Molecular hydrogen background is the main source of systematic errors in the HJet measurement of absolute polarization of proton beams at RHIC

Method:

For elastic scattering the energy spectra of recoil protons may be related to the proton density distribution at HJET:

Experimental setup:

- Molecular hydrogen distribution was emulated by injection of hydrogen to the HJet chamber.
- Measurements with single Gold beam allows us to strongly increase the rate of elastic events and strongly suppress the inelastic background.



Si strips are partially screened by the RF shield and collimators

Results:

The molecular hydrogen spatial distribution is much wider than atomic polarized hydrogen Jet.

- A method of subtraction of such “flat” background is already developed.
- Screening by the RF shield and collimators has to be accounted in the analysis.