

HPS Physics Reach & Run Plan

Mathew Graham, SLAC National Accelerator Laboratory
HPS DOE Review
July 11, 2013

- overview of bump-hunt/vertexing analysis
 - show schematic of beam-spot constrained & beam-spot fixed vertex fits
- signal & background rates
 - where do they come from? Why do we believe them?
- mass & vertex resolutions
 - where do they come from? Why do we believe them?
 - single track momentum (& angular?) resolution
 - compare test run data MC (single track & kinematics for pairs)
 - vertex resolution
 - single track position resolution (test run MC vs data as well)
 - event selection & mis-hits
 - isolation cut, vertex resolution & beam current
 - mis-hit schematic
 - show vertex resolution; sigmas vs mass & full distribution for single mass

More Outline

- Reach calculation ingredients
 - BH & Rad cross-section plot
 - mass resolution plot
 - vertex Zcut vs mass cut plot
- Run Plan & Reach
- Other physics topics
 - true muonium, multi-lepton, muon asymmetry?
- Further A' reach
 - pions @ 6.6 & 11 GeV