

2003 Run  
Goals of the pp2pp experiment

RHIC Retreat - Montauk Point

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Włoddek Guryn  
for the pp2pp collaboration

# Approved Physics Program of pp2pp

## Measure spin dependence of proton-proton elastic scattering

- **CNI region, Roman pots at 70 m,  $\beta^* = 100\text{m}$ :**

$$0.0004 < -t < 0.02 \text{ (GeV/c)}^2 \quad \sqrt{s} = 200 \text{ GeV}$$

$$0.0004 < -t < 0.13 \text{ (GeV/c)}^2 \quad \sqrt{s} = 500 \text{ GeV}$$

$\sigma_{\text{tot}}, \rho, A_N(t), A_{NN}(t), B, d\sigma/dt$

- **Medium  $|t|$  region, Roman pots between DX-D0:**

$$0.1 < -t < 1.3 \text{ (GeV/c)}^2 \quad \sqrt{s} = 500 \text{ GeV}$$

**diffractive minimum (peaks and bumps) and their spin dependence**

# Great Run on January 24, 2002

1. We had a **great run** and as a result are able to plan well for the run in 2003;
2. The main lessons learned:
  - Scraping is not a problem at RHIC pp collider, where one starts with high enough intensity and two separate rings;
  - We can work close to the beam after enough scraping is done, it seems that the distance  $< 15 \sigma$  is possible;
  - Need to improve transport matrix measurement;
3. The major goals for the next year are result of or experience this year.

# FY02 Activities

1. Finish and fully equip four RP stations;;
2. Move RP stations to 70m location for small  $-t$  data taking
3. Install power supplies for  $\beta^* \approx 100$  m and  $\sqrt{s} = 200$  GeV;
4. Use gained experience to allow more flexibility of Roman pot operation, better evaluate safe intensity;
5. Evaluate need for beam scrapers and BLM as safety devices;
6. Beam position measurement, BPMs and IPMs, at IP2 are critical to our analysis and need to be better understood.

# FY03 Activities

1. Build four more stations for DX-D0 region;
2. Design DX-D0 interface;
3. Purchase (modify) DX-D0 transition;
4. Complete PS upgrade for  $\beta^* = 100$  m,  $\sqrt{s} = 500$  GeV operation.
5. Install four RPs in DX-D0 region.