PQB during HAPPEx-III

B-Team Meeting
October 28, 2009
## PQB Requirements

<table>
<thead>
<tr>
<th>Experiment</th>
<th>Hall</th>
<th>Start</th>
<th>Energy (GeV)</th>
<th>Current (µA)</th>
<th>Target</th>
<th>$A_{pv}$ (ppm)</th>
<th>Maximum Charge Asym (ppm)</th>
<th>Maximum Position Diff (nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAPPEx-III</td>
<td>A</td>
<td>Aug 09</td>
<td>3.484</td>
<td>100</td>
<td>$^1$H (25 cm)</td>
<td>16.9±0.4</td>
<td>1±1</td>
<td>10±10</td>
</tr>
<tr>
<td>PVDIS</td>
<td>A</td>
<td>Oct 09</td>
<td>6.068</td>
<td>100</td>
<td>$^2$H (25 cm)</td>
<td>63±3</td>
<td>1±1</td>
<td>10±10</td>
</tr>
<tr>
<td>PREx</td>
<td>A</td>
<td>March 10</td>
<td>1.056</td>
<td>100</td>
<td>$^{208}$Pb (0.5 mm)</td>
<td>0.500±0.015</td>
<td>0.100±0.010</td>
<td>2±1</td>
</tr>
<tr>
<td>QWeak</td>
<td>C</td>
<td>May 10</td>
<td>1.162</td>
<td>180</td>
<td>$^1$H (35 cm)</td>
<td>0.234±0.005</td>
<td>0.100±0.010</td>
<td>2±1</td>
</tr>
</tbody>
</table>

Achieved

- $0.4±0.1$
- $1±1$
Achieved during HAPPEX-III

Charge Asymmetry:

\[ \langle A_{bcm1} \rangle = 0.1534 \pm 0.1382 \quad \chi^2 = 0.756 \]
units: µm for position (x & y) and µradian for angle (slope)
Accelerator Issues: Summary

I. PQB achieved and good for PVDIS. No need for PQB work in Injector for PVDIS. More work is needed for PREx.

II. Compton Background

III. Phase Advance

IV. BPM Saturation and FFB

V. Injector Drift