APS Update

Shutdown Work
• ID Installations
• Front End Installations
• Diagnostics Upgrades

Safety
• DOE Office of Assessment Audit
Shutdown ID Installations

- The IDs from Sector 3DS, 4DS and 21US were removed
  - The ID from Sector 3DS had new magnets installed, then was remeasured and reinstalled in Sector 3DS
  - The ID from Sector 4DS was remeasured and installed in Sector 26DS
  - The ID from Sector 21US was installed in Sector 30DS
- Lead was installed on the upper surface of the ID vacuum chamber and on the upper surface of the lower magnet structure as radiation shields in sector 3DS. This limits the minimum gap to 10.5 mm
## High Heat Load Challenge

High heat load comparison in All FEs

<table>
<thead>
<tr>
<th>Design heat load</th>
<th>IXS/Nano FE (sector 26,30)</th>
<th>CUFE (sector 21, 23,24)</th>
<th>FE v.1.5 (sector 16,22,31,32)</th>
<th>FE v. 1.2 (original 16 FEs)</th>
<th>Current operating condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Power (kW)</td>
<td>21</td>
<td>20</td>
<td>8.9</td>
<td>6.9</td>
<td>5.3</td>
</tr>
<tr>
<td>Peak power density (kW/mrad²)</td>
<td>590</td>
<td>281</td>
<td>245</td>
<td>198</td>
<td>153</td>
</tr>
<tr>
<td>Operating parameter</td>
<td>Two inline U3.3 at 10.5 mm gap, 180 mA</td>
<td>Two canted 2.07-m-long, U3.3 at 10.5 mm gap, 200 mA</td>
<td>One U3.3 at 10.5 mm gap at 150 mA</td>
<td>One U3.3 at 11 mm gap at 130 mA</td>
<td>One U3.3 at 11 mm gap at 100 mA</td>
</tr>
</tbody>
</table>
Shutdown FE Installations

• FE Installations
  – New high heat load FE in S30 (IXS)
  – New high heat load FE in S26 (Nano)
  – Completed S23 BM FE installation
  – Completed Preparations for S11 BM FE (next shutdown)
Diagnostics

- 14ID XBPM
  - New design (B1-71), works well
- Top Up Monitor upgrade for 1296 bunch
  - Test in progress
- Injector BPMs
  - Improved injector performance
- XBPM Installation
  - S23BM, S26ID, S30ID