ILC BDS Meeting, March 15, 2005

Geant Simulations of 2 mrad Extraction

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Geant geometry of 2 mrad extraction

- Feb 20 version
  - Sync radiations at QEFX2
- March 4 version
  - QEFX2 is removed.
Sync Radiations in 2 mrad extraction

Feb 20 Version

No problems up to QEFX2[1]
Sync radiations at QEXF2[2]

Power density = 
~100 W/0.25 cm x 0.02 cm 
~20 kW/cm²
Sync Radiations at QEXF2[2]

Power density = \( \sim 7 \text{ W} / (5 \text{ cm} \times 0.1 \text{ cm}) \)

14 W/cm\(^2\)
March 4 Version
Sync radiations

Look at the sync radiations hitting a 5 cm\(\phi\) beampipe.
Sync radiations from Z=33 to 60 m

Total power = 5 kW

Power density = \(~15 \text{ W/cm}^2\)
Radiative Bhabhas

<table>
<thead>
<tr>
<th></th>
<th># loss/bx</th>
<th>&lt; E &gt; (GeV)</th>
<th>Power (W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>QD0</td>
<td>9080</td>
<td>31</td>
<td>0.6</td>
</tr>
<tr>
<td>SD0</td>
<td>286</td>
<td>60</td>
<td>0.4</td>
</tr>
<tr>
<td>QEFX</td>
<td>272</td>
<td>69</td>
<td>0.4</td>
</tr>
</tbody>
</table>

Similar loss is expected for 20 mrad extraction.