Particle Detector Waveforms for Shots 17006 and 117017

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There are a total of 6 diamond particle detectors positioned but only 4 are good (I, III, V, & VI), according to Marcus. Detector III (left 20°) is the one we’ve been using for comparison with scintillating fiber and BCT.

Detector positions

Present channel configuration

<table>
<thead>
<tr>
<th>Detector</th>
<th>Osc. Channel</th>
<th>Sampling Speed [MS/s]</th>
<th>Power Supply CH</th>
<th>Voltage [V]</th>
<th>Attenuation [dB]</th>
</tr>
</thead>
<tbody>
<tr>
<td>pCVD I</td>
<td>LeCroy, CH1</td>
<td>2500</td>
<td>PS3, CH1</td>
<td>500</td>
<td>20</td>
</tr>
<tr>
<td>pCVD II</td>
<td>LeCroy, CH2</td>
<td>2500</td>
<td>PS3, CH2</td>
<td>500</td>
<td>20</td>
</tr>
<tr>
<td>pCVD III</td>
<td>LeCroy, CH3</td>
<td>2500</td>
<td>PS3, CH3</td>
<td>500</td>
<td>30</td>
</tr>
<tr>
<td>pCVD IV</td>
<td>LeCroy, CH4</td>
<td>2500</td>
<td>PS3, CH4</td>
<td>500</td>
<td>30</td>
</tr>
<tr>
<td>ACEN I</td>
<td>TEK, CH1</td>
<td>500</td>
<td>PS2, CH1</td>
<td>?</td>
<td>0</td>
</tr>
<tr>
<td>ACEN II</td>
<td>TEK, CH2</td>
<td>500</td>
<td>PS2, CH2</td>
<td>?</td>
<td>0</td>
</tr>
<tr>
<td>ACEN III</td>
<td>TEK, CH3(*)</td>
<td>500</td>
<td>PS2, CH3</td>
<td>?</td>
<td>0</td>
</tr>
<tr>
<td>ACEN IV</td>
<td>TEK, CH4</td>
<td>500</td>
<td>PS2, CH4</td>
<td>?</td>
<td>0</td>
</tr>
<tr>
<td>PIN</td>
<td></td>
<td>-</td>
<td>-</td>
<td>60</td>
<td>-</td>
</tr>
</tbody>
</table>

(*) Malfunctioning of the Tektronix restricts the voltage resolution on this channel to be at least 300 mV/div.
Other diamond particle detectors (e.g. channel VI) are better correlated with BCT & fiber data.

Shot # 17017

Calculated correlation of peak height

P&S 0.93 (ch III), 0.98 (ch VI)

P&T 0.78 (ch III), 0.91 (ch VI)

Aluminum Cathode Electron Multiplier

Other diamond particle detectors (e.g. channel VI) are better correlated with BCT & fiber data.

Shot # 17017

Calculated correlation of peak height

P&S 0.93 (ch III), 0.98 (ch VI)

P&T 0.78 (ch III), 0.91 (ch VI)

Aluminum Cathode Electron Multiplier

Other diamond particle detectors (e.g. channel VI) are better correlated with BCT & fiber data.

Shot # 17017

Calculated correlation of peak height

P&S 0.93 (ch III), 0.98 (ch VI)

P&T 0.78 (ch III), 0.91 (ch VI)

Aluminum Cathode Electron Multiplier
Other diamond particle detectors (e.g. channel VI) are better correlated with BCT & fiber data.

Shot # 17006

Aluminum Cathode Electron Multiplier

P&S 0.47 (ch III), 0.93 (ch VI)
P&T 0.24 (ch III), 0.84 (ch VI)