Recent ST sensor studies

Slides provided by A. Affolder
TSC 200
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Sensor Groups

- Three Sets of Sensors Probed
  - Old OB2 (Week 47 2001 to Week 21 2002)
    - 75 Sensors
  - Old OB1 (Week 43 2001 to Week 2 2002)
    - 31 Sensors
  - Newer OB2 (Week 38-41 2002)
    - 97 Sensors

- Environmental conditions tightly controlled
  - Temperature 23.1-23.8 C
  - RH < 30% at all times
IV Probing Results

Probed Current @ UCSB (400 V) – QTC Measurement (400 V)

<table>
<thead>
<tr>
<th>Sensors</th>
<th>&gt; 2 µA</th>
<th>&gt; 5 µA</th>
<th>&gt;10 µA</th>
<th>&gt;20 µA</th>
<th>&gt;100 µA</th>
<th>&lt; -2 µA</th>
<th>&lt; -5 µA</th>
<th>&lt; -10 µA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Old OB2</td>
<td>15%</td>
<td>9%</td>
<td>8%</td>
<td>5%</td>
<td>1%</td>
<td>8%</td>
<td>3%</td>
<td>1%</td>
</tr>
<tr>
<td>Old OB1</td>
<td>6%</td>
<td>3%</td>
<td>3%</td>
<td>3%</td>
<td>3%</td>
<td>3%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>New OB2</td>
<td>3%</td>
<td>3%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>2%</td>
<td>2%</td>
<td>0%</td>
</tr>
</tbody>
</table>

- An increase greater than 5 µA can cause common mode noise
  - Rate of CMN problem consistent with percentage of old OB2 sensors with a 5 µA increase

- **Agreement much better with new OB2 sensors!!!!**
  - *(Produced Week 38-41 of 2002)*
  - Factor of ~4 decrease in the rate of higher (and lower) current measurement at UCSB relative to old OB2 sensors