CUORE Experiment – a search for 0νββ

- Bolometric detector searching for 0νββ in TeO$_2$ and is a result of a long running series of experiments.
- 742kg detector with 988 TeO$_2$ crystals arranged into 19 towers with 52 crystals.
- Each crystal instrumented with a NTD thermistor and a Si heater.
- Detector housed in a dilution refrigerator designed to operate at 10mK.

- We accumulated few months of data in 2017 and published the first results in October.
- Data divided into two datasets with some improvements in between.
• Accumulated a total of 86.6 kg·yr of TeO$_2$ exposure.

• After applying data quality cuts, 155 events left in the region of interest (ROI).

<table>
<thead>
<tr>
<th>TeO$_2$ Exposure</th>
<th>37.6 kg·yr (Dataset 1)</th>
<th>48.7 kg·yr (Dataset 2)</th>
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</thead>
<tbody>
<tr>
<td>FWHM (physics) @2527.5 keV</td>
<td>7.7±0.5 keV</td>
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- Background rate of 0.014 ± 0.002 counts/(keV·kg·yr)
- Combined results with Cuoricino and CUORE-0 provides the most stringent limits on $^{130}$Te 0νββ decay.