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## CMS Data for High School Teachers and Students

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The CMS Collaboration has released more than a quarter of a million 7 TeV proton-proton events that contain pairs of muons, electrons or jets with 2-body invariant masses in the range 0 to 100 GeV for student and teacher investigations. QuarkNet and I2U2 have developed software to exploit these data in a manner similar to that of the front-line physicists: a 3-D web-based event display to understand particle interactions in the detector and a histogramming package to create and examine mass plots after making cuts on the data. An additional package allows the students to produce on-line posters featuring their results. The data include large numbers of events corresponding to the presence of J/psi, W and Z particles, allowing students to make “discoveries”. We describe the released data and three initiatives that allow exploration: a student masterclass, a more in-depth web-based “e-Lab” and a summer 2011 teacher workshop to be held at Fermilab.

### Summary

CMS data is available for education purposes from the 7 TeV run of 2010. QuarkNet and I2U2 have developed packages for making this data accessible to high school students and teachers.

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