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Track reconstruction algorithms in high pile up environments

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The reconstruction of particle trajectories in the tracking detectors is one of the most complex parts in analysing the data at hadron colliders. Maximum luminosity is typically achieved at the cost of a large number of simultaneous proton-proton interactions between beam crossing. The large number of particles produced in such interactions introduces challenges both in terms of maintaining excellent algorithmic performance as well as meeting computing constraints. I will review the development of track reconstruction algorithms at hadron colliders and highlight how they have evolved to cope with pile up. I will also discuss some novel ideas for how track reconstruction algorithms may look in the future.

Presenter: GRAY, Heather (LBNL)

Session Classification: Plenary