



Signal reconstruction in the ATLAS calorimeter: from particles to topological cell clusters

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[Indico webpage](#)



This lecture introduces the most basic principles of energy measurements with calorimeters, starting with brief discussions of the interaction of particles with matter, the concepts behind sampling calorimeters, and the basics of signal generation and extraction. Next, the calorimeter technologies employed by ATLAS and the considerations guiding their designs are presented. This is followed by a discussion of the lowest level energy reconstruction from the raw signals to calorimeter cell energies, with a focus on the strategies employed to suppress the signal pile-up at this early signal processing stage. The lecture will conclude with a discussion on the clustering of the calorimeter signals for physics analysis. Important features of these topological cell clusters are presented together with the models applied for their (local) calibration.