

# Classifiers for centrality determination in proton-nucleus and nucleus-nucleus collisions

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Centrality, as a geometrical property of the collision, is crucial for the physical interpretation of proton-nucleus and nucleus-nucleus experimental data. However, it cannot be directly accessed in event-by-event data analysis.

Contemporary methods of the centrality estimation in A-A and p-A collisions usually rely on a single detector (either on the signal in zero-degree calorimeters or on the multiplicity in some semi-central rapidity range). In the present work, we develop an approach for centrality determination that is based on machine-learning techniques and utilizes information from several detector subsystems simultaneously. Different event classifiers are suggested and evaluated for their selectivity power in terms of the number of nucleons-participants and the impact parameter of the collision.

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