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**Analysis of the microstructure of cosmic ray air showers with the HADES RPC
TOF wall**

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During the commissioning of the RPC ToF wall of the HADES spectrometer at GSI (Darmstadt, Germany) several millions of cosmic ray data were acquired with a granularity, time resolution and tracking capabilities never reached before at the Earth's surface. The preliminary analysis of the data show highly interesting trends and features that might lead to the development of different alternatives, complementary to the existing techniques, for the measurement of primary cosmic rays with ground-level detectors. Further research is needed to confirm the determined effects and to relate them to well identified showers. The results might also be of interest for a variety of applications: solar physics, geomagnetic storm forecasting, space weather or astroparticle physics, among others.