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## **Elliptic flow fluctuations and non-flow correlations in 200 GeV Au+Au collisions**

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We present the latest results of the determination of the contribution of non-flow effects to the elliptic flow fluctuations in 200 GeV Au+Au collisions, measured by PHOBOS. In a hydrodynamical scenario, fluctuations in the shape of the initial collision region naturally lead to corresponding fluctuations in the elliptic flow signal. Measurements of elliptic flow fluctuations should therefore shed light on the connection between observed flow, the initial geometry and the hydrodynamic evolution of the system. However, non-flow correlations can lead to a broadening of the observed event-by-event  $v_2$  distribution and thereby modify the observed  $v_2$  fluctuation signal. We have developed an analysis procedure to quantify the contribution of non-flow correlations to the flow signal. This analysis crucially relies on the large pseudorapidity coverage of the PHOBOS multiplicity array. The flow signal is disentangled from the non-flow contributions, by a systematic study of two-particle azimuthal correlations at different rapidity gaps.

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