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Type: **Parallel Talk**

## Search for the chiral magnetic effect at the LHC with the CMS experiment

*Wednesday, 16 May 2018 09:00 (20 minutes)*

Searches for the chiral magnetic effect (CME) using charge-dependent azimuthal correlations with respect to event planes are presented in PbPb collisions at 5.02 TeV and pPb collisions at 5.02 and 8.16 TeV, with the CMS experiment at the LHC. The azimuthal correlations with respect to the second- and third-order event planes are explored as a function of pseudorapidity, transverse momentum, and event multiplicity, which provides new insights into the underlying background correlations. By employing an event-shape engineering technique, a linear dependence of charge-dependent correlations on the second-order anisotropy flow ( $v_2$ ) is observed, and the upper limits on the  $v_2$ -independent fraction, which is directly related to the CME signal, are obtained at 95% confidence level for both pPb and PbPb collisions. These results provide strong constraints on the search for the chiral magnetic effect at LHC energies, and establish new guidelines for searches in future experiments.

### Content type

Experiment

### Collaboration

CMS

### Centralised submission by Collaboration

Presenter name already specified

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