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The Astrophysics of Cosmic Ray Anisotropy: a Review

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This is a review of the observations of cosmic ray anisotropy in a wide energy range, spanning from sub-TeV to EeV energy range. The observations will be described, addressing the different experimental techniques used at the various energy ranges, and stressing the potential physical mechanism they are able to probe. Proposed scenarios that address the origin of the cosmic ray anisotropy will be reviewed as well. The interpretations of experimental results will have to rely on a multi-disciplinary approach in order to disentangle different physics processes that simultaneously direct the transport of cosmic rays in magnetized plasmas. Using cosmic rays to probe the properties of magnetic fields at different scales and to pinpoint to the origin of cosmic rays are among the main drivers.