

Das Institut für Physik

Fachbereich Astrophysik und Geophysik

lädt zu folgendem Vortrag

im Rahmen des **Astrophysikalischen Kolloquiums** ein:

“The Magnetic Complexity and Coherence of Interplanetary Coronal Mass Ejections”

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Many aspects of the three-dimensional structure and evolution of coronal mass ejections (CMEs) in interplanetary space remain unexplained. A prominent question is whether interplanetary CMEs can behave as magnetically coherent objects. CMEs can be regarded as 'coherent' structures if they are able to respond to external perturbations in a collective manner, which implies information about the acting perturbation must be able to propagate across a CME structure. Oppositely, this also implies that if CMEs are not globally coherent structures, single-point in situ measurements cannot be considered as indicative of the global CME properties. At which heliocentric distances and across which spatial scales (local or global) CMEs can behave coherently, are topics of debate. Additionally, the very nature of the information carrier is an open question in its own right. Recent studies also highlighted the ever-changing nature of the CME magnetic complexity during propagation, primarily as a consequence of interactions with other large-scale solar wind structures. In this presentation, we summarize recent observational, theoretical, and modeling efforts shedding light on the spatial distribution and evolution of CME magnetic complexity and coherence during propagation through the interplanetary space.

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