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Insights on 3D kinematics of Coronal Mass Ejections in the inner corona.

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Despite studying the kinematics of Coronal Mass Ejections (CMEs), the main challenges faced in this area are due to projection effects and lack of information in the inner corona. We have tried to improve on these shortcomings by implementing the Graduated Cylindrical Shell (GCS) model to the pair of images taken by COR-1 and COR-2 on-board STEREO-A/B, and studied their initial 3D evolution. Combining 3d profiles of width evolution and acceleration, we found observational evidence that the impact of Lorentz force on the CME kinematics, stays dominant till a height range of 2.5-3 R. We further found from a statistical perspective, that the kinematics in the outer corona is strongly coupled by the kinematics in the inner corona. With the upcoming solar missions that are dedicated to inner coronal observations, the results of our work focuses on exhibiting the significance of inner corona for a complete understanding of CME kinematics.

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