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Oral
Successive coronal mass ejections (CMEs) frequently interact during heliospheric propagation, leading to substantial reorganization of plasma structures and amplifying geoeffectiveness; however, the timing and morphological evolution of these interactions remain largely unconstrained by direct observations. We investigate a sequence of Earth-directed CMEs launched between November 4-10, 2025, using continuous heliospheric white-light imaging from PUNCH. The imaging reveals the onset, evolution, and completion of CME-CME interaction, characterized by front convergence, localized brightness enhancement, and the formation of a compound density structure in the inner heliosphere. The interaction onset time and duration are identified directly from imaging signatures. Near-Earth solar wind observations show that the compound structure maps to a single, enhanced sheath region, which drives the primary geomagnetic response. This study demonstrates that CME-CME interaction can be diagnosed directly from heliospheric imaging and that interaction-driven sheath formation plays a central role in enhancing geoeffectiveness.

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