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## On flux ropes born in helmet streamers

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The slow solar wind and the heliospheric plasma sheet wind is pervaded by periodic density perturbations, which have been identified as the signatures of flux ropes born at the tip of the helmet streamers. In this talk, we propose that the main mechanism controlling this release is a tearing mode. We use MHD simulations of the solar wind and corona to reproduce realistic configurations and outflows surrounding the heliospheric current sheet. The reconnection process, and in particular the fastest growing tearing mode is characterized at various Lundquist numbers in 2D and compared with observations using the ideal tearing scenario. We also study, within 3D simulations, unstable helmet streamer's configurations whose signatures has been measured by Parker Solar Probe and Solar Orbiter during the month of June 2020. These works provide a new fundamental understanding of the inherent variability of the heliospheric plasma sheet, which is essential to reach better forecasting abilities of the Solar-Terrestrial relations.

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