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Title:

Recent observational advances in kink oscillations of coronal loops

Abstract:
Kink oscillations are periodic transverse displacements of coronal loops observed after impulsive energy releases at EUV/X-ray wavelengths. Determination of the properties of oscillating loops, such as period, loop length, damping time, and spatial harmonics, makes them an important object to study in the context of coronal seismology. Despite several observations since their first discovery in the late 90's, a full perspective on this phenomenon has been missing because of instrument limitations. The launch of the Solar Dynamics Observatory in 2010 has drastically improved our view and has permitted to discover new and unexpected details in the kink wave dynamics. This talk aims to review the recent observational findings on kink oscillations. We show that, in addition to the ordinary rapidly decaying oscillations, a further class exists, characterised by low-amplitude and decayless oscillations. This new regime, which appears to be a common phenomenon in the solar corona, requires a specific theory to explain the excitation mechanism and the absence of damping. We address these questions in relation to the latest studies on the "standard" kink oscillations.