

DETERMINATION OF FLUTE OSCILLATIONS DRIVEN BY FUNDAMENTAL KINK OSCILLATIONS OF A MAGNETIC CYLINDER

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The leakage and nonlinear coupling of fundamental (kink) oscillations in a 3-dimensional uniform straight magnetic cylinder, representing coronal loops, is investigated by numerical simulations. Nonlinear kink waves are driven into the system at one of the two footpoints in the long wavelength approximation. The motivation of this study is to determine whether nonlinear coupling through leakage to higher harmonic oscillations (flute modes) could be accounted for the rapid decay of oscillations of coronal flux tubes observed by various high-resolution space-born EUV instruments (e.g. TRACE or STEREO).