

Current results and perspectives of coronal wave investigations

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Wave and oscillatory activity is observed with modern imaging and spectral instruments in the visible light, EUV, X-ray and radio bands in all parts of the solar corona, in particular in active regions and polar plumes. Magnetohydrodynamic (MHD) wave theory gives satisfactory interpretation of these phenomena in terms of MHD modes of coronal structures. The talk reviews the current trends in the observational study of coronal waves and oscillations with spaceborne and ground-based facilities (with the main emphasis on the standing kink and sausage modes, and propagating fast wave), recent development of theoretical modelling of interaction of MHD waves with plasma structures, and implementation of the theoretical results for the mode identification. The use of MHD waves for remote diagnostics of coronal plasma is discussed and the applicability of this method for the estimation of coronal magnetic field and fine structuring is demonstrated.