# Magnetic field and waves in solar prominences

K. Ichimoto [1], Y. Hashimoto [2], D. Yamasaki [1], Y. Huang [1], S. Ueno [2], A. Asai [2], and T. T. Ishii [3]

[1] Ritsumeikan Univ., Shiga, Japan
[2] Faculty of Science, Kyoto Univ., Kyoto, Japan
[3] JAXA, Kanagawa, Japan

contact e-mail: ichimoto@kwasan.kyoto-u.ac.jp

The magnetic field of solar prominences is an important ingredient that governs their presence, structure and destabilization process. number of studies on the magnetic field have been conducted by spectro-polarimetric observations, but the field direction and strength of prominences are still discrepant among the studies partly due to the ambiguity inherent in the Sto es inversion. In this study, we performed spectro-polarimetric observations of about ten prominences on the solar limb including both uiescent and active region prominences in e I 8 using the Domeless Solar Telescope at ida Observatory. sing the EL code, magnetic fields of each prominence were derived, and it is found that the field strengths of uiescent prominences are less than 4 , which is consistent with previous studies, while the field strengths of active region prominences are less than 2 , which is inconsistent with some of the previous studies which estimated field strengths of on-dis active region filaments as 4 - 8 . To determine the field direction which suers from the deg. ambiguity in the anle diagnosis, we focus on the lfvenic wave propagating across the prominences, i.e., if it is detected, the direction of the propagation will directly infer the direction of the magnetic field. otivated by this idea we investigated more than prominences on the solar limb using fulldis -alpha images ta en by Solar Dynamics Doppler Imager at ida Observatory. It is found that the waves with a period of about 4min propagating with a coronal lfven speed across the prominences are uite common for side-view prominences, and their propagation direction is mostly horizontal with respect to the solar limb rather than vertical. The fact that the waves are observed only in Doppler signal but not in intensity suggests the incompressive, or lfvenic, nature of the waves. This finding supports the horizontal field configuration for majority of the prominences.