M12a 静穏フィラメントまわりの光球面速度場

真柄哲也 (京大理)、北井礼三郎（京大理）

Coronal mass ejections (CMEs) are one of the most attractive phenomena observed outside the solar surface. They release a lot of magnetized plasmas to the interplanetary space, which can be detected by ground-based observatories as well as spacecrafts. Recently, the spacecraft SOHO has succeeded in discovering some detailed structures of CMEs, which will contribute to those studies to investigate evolutionary features of CMEs.

From theoretical viewpoints, CMEs have been one of the most interesting subjects of the solar physics. Historically, the initiation of CMEs was often considered to have relations with photospheric motions. Mikic et al. (1988) carried out a numerical simulation where a magnetic arcade subject to a particular shearing motion in the photosphere could reproduce the eruption of a magnetized plasma. Similar works to Mikic et al. also suggest that photospheric motions play an important role in the dynamics of magnetic arcades. Observationally, it is known that CMEs often occur around the regions where filaments exist, so that theorists have been studying how photospheric motions affect those magnetic structures containing filaments within themselves.

In order to confirm these theoretical considerations, we do a study to investigate the photospheric velocity field around a quiescent filament. By means of local correlation tracking methods (LCTs), we derive photospheric velocity maps from G-band images. Then we match these velocity maps to Hα filament images and try to understand how photospheric gases move beneath a Hα filament. In this meeting, we discuss the flow pattern around a Halpha filament and the effect of this flow on the CME evolution.

Reference
Mikic, Z., Barnes, D. C., and Schnack, D. D. 1988, ApJ, 328, 830