

# **Global statistical analysis between CMEs and solar microwave Drifting Pulsation Structures (DPSs)**

**C. Tan**(1), Y. H. Yan(1), Y. Y. Liu, Q. J. Fu, S. J. Wang, H. R. Ji, Z. J. Chen

(1)National Astronomical Observatories, Chinese Academy of Sciences, Beijing 100012, China

Solar radio burst, especially microwave Fine Structures may be as an important diagnostics stool to draw the evolution map of the flare loop in the initial phase of solar flares. For example, drifting pulsation structures (DPSs) may be a signature of dynamic magnetic reconnection. The drifting structures correspond to the radio emission from primary and secondary plasmoids which are formed in the extended current sheet due to tearing and coalescence processes and they move upwards in the solar atmosphere. During the 23rd solar activity cycle, thousands of microwave radio bursts have been observed with the solar spectrometers (0.625-7.6GHz) of China. We found 54 DPSs during 1998-2004. And 29 of them are associated with CMEs. The start time of the CME (after interpolation) is 12 minutes earlier than solar radio burst, and 14 minutes earlier than DPSs. The drift rate of the DPSs is  $-1.6^{+0.3}_{-0.2}$ -30MHz/s. 48 events are associated with h-alpha flare. Moreover, we illustrated the multi-wavelength analysis of some events in detail, and showed that these events map the upwards plasmoids ejection which associated with the CMEs.