## DINAMICS OF CHROMESPHERE SPICULES

## D. Khutsishvili<sup>a,b</sup>, V. Kulijanishvili<sup>b</sup>, T. Kvernadze<sup>b</sup>, V. Kakhiani<sup>b</sup>

## E-mail: <u>qartvelo@gmail.com</u>

<sup>a</sup> Department of Physics, Faculty of Exact and Natural Sciences, Iv. Javakhishvili Tbilisi State University, Tbilisi 0179, Georgia

<sup>b</sup> Abastumani Astrophysical Observatory, Adigeni ,Observatory,mount Kanobili

The study of the physical processes taking place on the Sun and their interrelation are presently given a very significant role, though not fully investigated till now are the non-stationary processes in the solar atmosphere.

Our research aim is to reveal the connection of the dynamics of the solar fine structure to such physical processes, which are taking place in the lower layers of solar atmosphere and in the layers located above it. Such topical problems as the balance of matter and energy of the layer transferring from the chromosphere to the corona, generation of the solar wind, etc., require thorough research. The study of the corona heating mechanism, one of the significant sources of which are chromosphere spicules, specifically, magnetohydrodynamic waves (MHD) propagated in it, and transformation of energy by them from lower toward upper layers, is one of the basic problems of interpretation of processes occurring in the solar atmosphere.

Chromospheric spicules were observed on November 21, 2012, with the 53 cm Lyot coronagraph (D-530 mm., F–800 mm.) mounted at the Abastumani Astrophysical Observatory (Georgia) and the high dispersion spectrograph (0.96 Å/mm) equipped with Apogee CCD U9000 (CCD array size: 3,056 x 3,056; pixel size: 12 x 12 mkm; CCD array measure: 36.7 x 36.7 mm). "Lombi's method will be used for the analyses of observation data. (Press et al. 1992).

For processing the data of visual observations we used our modification of the module of one of AlmaP359 computer programs, which graphically makes it possible to define both radial and tangential velocities, and half-widths. For the analysis of observational data the so-called "algorithm of Lomb periodograms for non-uniformly distributed data" will be used (Press et al. 1992).

In the article it is analyzed a new type of observational data of H $\alpha$  spicules, with the exposure equal to 0.03 sec and the cadence of 4.5 seconds. The Doppler velocities of H $\alpha$  spicules change in the interval of - 3 km / s - 10 km / sec interval and FWHM H $\alpha$  spectral line - in the interval of 0.3Å – 0.6Å. The Doppler velocity variation periods of 6 min, 4 min and 3 min and the FWHM variation periods of 9 min, 3.6 min and 2.3 min were found.

Morphological primary analysis of the observational data show that the variations of Doppler velocities of  $H\alpha$  spicules has quasi-periodic or sometimes even quasi-turbulent character.