Chromospheric activities of late-type stars based on Guoshoujing Telescope

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Abstract. We present chromospheric activities of late-type stars based on stellar spectrum survey of LAMOST (also called GuoShouJing telescope) in 2010-2013. Using the equivalent widths of the H_α line (larger than 1 $\mathring{A}$), we have found 6391 active stars from 99741 M stars.

Keywords. stars: late-type, stars: activity, stars: chromospheres, stars: spectra, stars: low-mass.

GuoShouJing Telescope (LAMOST) is a Chinese national scientific research facility (Cui *et al.* 2012; Zhao *et al.* 2012). We have reduced the stellar spectrum (with a spectral resolution of 1800, Luo *et al.* 2012) of M candidates of LAMOST in 2010-2013. We measured the chromospheric EW of H_α line using the Hammer program and visually inspected all candidates and manually assigned spectral types (Hawley *et al.* 2002; Zhang *et al.* 2012). The criteria to classify active stars are that the EW of the H_α line is larger than 1 $\mathring{A}$, and its error, and the center height of the H_α emission must be 3 times its noise. These are similar to the criteria of West *et al.* (2011) and Zhang *et al.* 2012. We found 6391 active stars from 99741 M stars. Figure. 1 shows the LAMOST spectra (left) and the fraction of stars that are active as a function of spectral types (right).
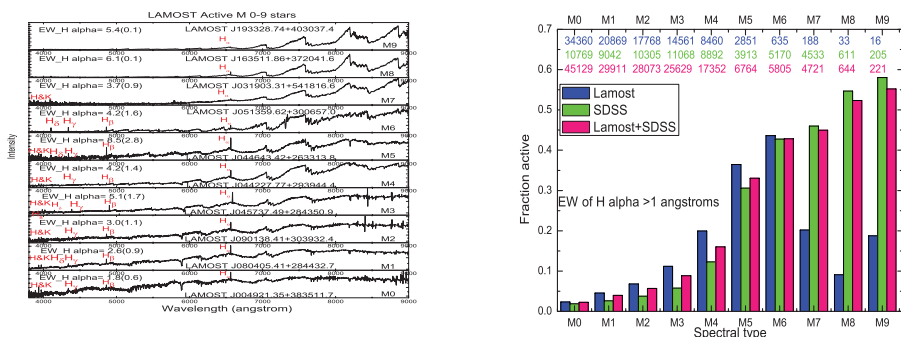

Figure 1. The LAMOST spectra and fraction of active stars as a function of spectral type.

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