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**ON THE AGE OF FLARE STAR FS2 AND THE CLUSTER OF  $\alpha$  PERSEI**

As has been shown earlier, there is a correlation between the maximum flare energy (amplitude) which is likely to be emitted by star of particular magnitude (mass) and its age (Parsamian, 1976, 1995). This relationship depends upon the evolutionary stage of the flare stars, and of the clusters in which they have been observed. It follows therefore, that the age of any flare star may be estimated if large flare – sufficiently intense to be regarded as maximal – is observed.

During flare star searches in the  $\alpha$  Persei cluster, a large flare of amplitude  $\Delta U \approx 9^m$  was observed for the star FS2 (Semkov et al., 1993). According to these authors, the (V, V–I) photometry of FS2 makes it acceptable for membership in the cluster. Flares of such large amplitudes occur very seldom; it is therefore likely that the energy emitted in this particular event is close to the upper limit described above. If star FS2 is a member of the  $\alpha$  Persei cluster, we can then estimate the age of the star and of the cluster in which it resides.

According to Semkov et al., FS2 is a faint star of magnitude  $U \approx 21.7$  and of spectral class  $\geq M5$ . Given a distance of  $r = 166$  pc for the  $\alpha$  Persei cluster, the absolute magnitude of FS2 is then  $M(U) = 15.6$ , and the absolute magnitude of the flare is  $M_f = 6.6$ . According to Table 3 in Parsamian (1995) the age of the star would then be  $3 \times 10^7$  yr, and the age of the cluster at least as large. For comparison, other independent estimates of the age of this cluster vary from  $5 \times 10^7$  yr to  $8 \times 10^7$  yr (Mermilliod, 1981, Prosser, 1992). On the other hand if FS2 is a field star, then  $M(U) = 15.1$  (Mampaso, 1991),  $M_f = 6.1$  and the age would be  $\sim 2 \times 10^7$  yr.

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