

memory of the initial stellar angular momentum vanishing, considering q as a memory parameter ($q = 1$ corresponding to no memory). In fact, these stars retain the memory of their initial angular momentum until an age > 100 Myr (e.g., Bouvier et al. 1997, A&A, 326, 1023). de Freitas & De Medeiros (2013, MNRAS, 433, 1789) shown that the rotation-age relationship can be reproduced using a model from NF. In this model the index q_K is derived from the Kawalers parameterization, where $q_K = 1$ indicates the saturated magnetic field regime, and the unsaturated one is given by $q_K = 1 + 4aN/3$. The parameters a and N are related to the dynamo and magnetic field geometry, respectively. We used the de Freitas & De Medeiros' model to derive an empirical relationship between q , a and N as the equation $q \approx q_0(1 - \Delta t/q_K)$, where $\Delta t = t - t_0$ is the age range, and q_0 is the index q for the cluster with age t_0 . This equation constitutes a bridge between q and the theory of magnetic braking of stellar rotation.

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ZINC ABUNDANCES IN GALACTIC BULGE STARS

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Zinc is overabundant in metal-poor stars (Cayrel et al. 2004), being partially produced by neutron addition. It decreases with increasing metallicity, similarly to alpha-elements. In order to trace its abundance, the derivation of Zn abundance in different stellar populations, and varying metallicities, helps understanding its nucleosynthesis processes.

Zn is also the main element of reference to derive the metallicity from absorption lines in quasars (QSOs), which allows to compare their evolution as a function of redshift and metallicity in metal-poor stars.

In the present work, we derive Zn abundances for a sample of 56 bulge field stars, observed at high resolution with the FLAMES-UVES spectrograph. The mean wavelength coverage is 4800-6800 Å, at a resolution $R \sim 45000$. The atmospheric parameters effective temperature, gravity and metallicity were derived in Zoccali et al. (2008) and Hill et al. (2011). Recently we have analysed the manganese abundances of this sample (Barbuy et al. 2013).

To compute the Zn abundances we use spectrum synthesis, for the lines ZnI 4810.53 and 6362.34 Å.

The analysis of our data shows that the abundance of [Zn/Fe] decreases with increasing metallicity, in agreement with the data obtained from the literature. The details of Zn behaviour for the metal-rich bulge stars of the present work are under analysis.

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A STUDY OF ROTATIONAL VELOCITY DISTRIBUTION OF BE STARS

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Classical Be stars are rapid rotators of spectral type late O to early A and luminosity class V-III, which exhibit Balmer emission lines and often a near infrared excess originating in an equatorially concentrated circumstellar envelope, both produced by sporadic mass ejection episodes. The causes of the abnormal mass loss (the so-called Be phenomenon) are as yet unknown. In spite of their high $v \sin i$, rapid rotation alone cannot explain the ejection episodes as most Be stars do not rotate at their critical rotation rates. In this work we present the distribution of $v \sin i$ of 261 Be's stars from BeSS (Be Star Spectra) database. We used two techniques, the Fourier method and the FWHM (Full Width at Half Maximum) method. For the analysis we made use of three absorption lines of Helium (4026Å, 4388Å and 4471Å). Stars with projected rotational velocities up to 300 km s^{-1} agree with the ones already published in the literature. 84 of our stars do not have the values of rotational velocity published. The majority of our sample are B1/B2 spectral type, whose have the greatest velocities.

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MORE FITTING $V \sin I$ DISTRIBUTION FOR EVOLVED FIELD STARS

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We use 1536 $V \sin i$ measurements of evolved field stars in order to determine the q parameter from