

## GALACTIC DISTRIBUTION OF SYMBIOTIC STARS

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Statistical distances to the known galactic symbiotic stars are derived from the calibration of the absolute K magnitude of galactic bulge symbiotic giants versus spectral type. The resulting space distributions of S, D and yellow symbiotic stars are studied.

The spectral types of bulge symbiotic giants calculated by [1] from absorption bands in the near infrared are combined with K magnitudes from [2] to obtain a spectral-type-K-magnitude calibration for galactic bulge symbiotics ( $K \approx -0.175 \times [SpT] - 5.82$ ). Extrapolating this relation outside the bulge, one can estimate the spatial distribution and total number of symbiotic stars in the galaxy. The sample of symbiotic stars seems complete up to  $K \approx 5$  ( $r < 2.9$  kpc). This implies a surface density of  $\approx 0.64^*/kpc^2$  in the solar vicinity, from which the surface density of symbiotic stars in the galaxy:  $N(r) = 13.5 \times e^{-r/2.78} kpc^{-2}$ . Hence, the total number of symbiotic stars in the Galaxy is:  $\approx \int N(r) 2\pi r dr \simeq 650$ . Other results are: (1) most of the symbiotics are located inside a thick disk of  $\approx r = 8 - 10$  kpc and  $\Delta z/2 = 1$  kpc, where  $L$  and  $T_{eff}$  are  $\approx$  constant; (2) above  $z = 1$  kpc the scale height decreases strongly.  $T_{eff}$  increases also at higher  $z$ , which points to a different population (possibly of lower metallicity) and; (3) there is a sharp difference between the inner and outer regions of the solar circle in both,  $L$ ,  $T_{eff}$  and probably  $n$ , which can be related with the observed relative abundance of oxygen and carbon giant stars.

### References

1. Medina Tanco, G. A. and Steiner, J. E. (1994), Spectral Classification and HR Diagram of Symbiotic Stars, *Astron. J.* submitted
2. Kenyon, S. J. (1986), *The Symbiotic Stars*. Cambridge Univ. Press, Cambridge.