Precise calibration of the dependence of surface brightness–colour relations on colour and class for late-type stars

(Astronomy & Astrophysics)

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A&A 640, A2 (2020), https://doi.org/10.1051/0004-6361/202038012

Key words. techniques: interferometric – stars: atmospheres – stars: late-type – stars: fundamental parameters – errata, addenda

In the original paper, Salsi et al. (2020), there is a mistake in the calculation of the uncertainty on the angular diameter estimate. Equation (8) should be written as follows:

\[ \sigma_{\theta LD} = \sqrt{2 \ln(10) \theta LD^3 + \sigma_{\theta LD, b, phot}^2 + \sigma_{\theta LD, phot}^2}. \]  

(1)

The photometric part of the uncertainty, \( \sigma_{\theta LD, phot} \) (Eq. (10) in the paper), also contains an error. The correct formula is following:

\[ \sigma_{\theta LD, phot}^2 = (0.1 + a)^2 \sigma_V^2 + a^2 \sigma_K^2 + (0.1 + 0.881a)^2 \sigma_A^2. \]  

(2)

Only considering arbitrary uncertainties of 0.022 mag on both \( V \) and \( K \) magnitudes leads to a precision of 1.30% on the angular diameter, and not 1.70% as indicated in the paper. The conclusions in the paper remain unchanged.

References

Salsi, A., Nardetto, N., Mourard, D., et al. 2020, A&A, 640, A2

* Based on CHARA/VEGA observations.