LSDCat: Detection and cataloguing of emission-line sources in integral-field spectroscopy datacubes (Corrigendum)

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We correct an error in Eq. (34) of [Herenz & Wisotzki \(2017\)](#), where we provided an estimate for the signal-to-noise ratio for an emission line that matches the 3D Gaussian filter template of LSDCat. The correct equation reads

$$S/N_{x',y',z'} \approx \frac{1}{\sqrt{8\pi^{3/2}\sigma_z\sigma_G}} \times \frac{F_{\text{line}}}{\sigma\Delta\lambda}, \quad (1)$$

that is, σ_G is not under the square root as presented in the paper. All previous steps that lead to this equation, that is, Eqs. (29)–(33), were correct.

As a consequence of this correction, the numerical value of the limiting flux in the MUSE HDF-S data at 7000 Å, given in Eq. (35) of our paper, was also incorrect. Inserting the given values ($\sigma_G = 1.84$ px, $\sigma_z = 1.46$, $\bar{\sigma} = 1.42 \times 10^{-20}$ erg s⁻¹ cm⁻² Å⁻¹, $\Delta\lambda = 1.2$ Å, and $S/N_{\text{det}} \approx 8$) into Eq. (1) delivers

$$\log F_{\text{line}} [\text{erg s}^{-1} \text{cm}^{-2}] \approx -17.69. \quad (2)$$

Therefore Fig. 3, where the theoretical limiting flux was compared with the results of a source insertion and recovery experiment, also needs to be corrected. The corrected version of Fig. 3 is shown here in Fig. 1. The match between the experiment and theoretical expectation in Fig. 1 is closer in comparison to what was originally presented, so parts of the discussion in the final paragraph of Sect. 3.2 are thus obsolete.

Fig. 1. Completeness curve $f_c(\log F [\text{erg s}^{-1} \text{cm}^{-2} \text{Å}^{-1}])$ from a fake source insertion and recovery experiment on the MUSE HDF-S datacube at 5000 Å. The dotted vertical line shows the 50% completeness limit at $\log F [\text{erg s}^{-1} \text{cm}^{-2}] = -17.75$ and the dashed vertical line shows the analytically approximated minimum line flux given in Eq. (2) as $\log F_{\text{line}} [\text{erg s}^{-1} \text{cm}^{-2}] \approx -17.69$ at which LSDCat is expected to detect emission line sources in this experiment.

References

Herenz, E. C., & Wisotzki, L. 2017, *A&A*, 602, A111