Erratum: Direct neutron capture cross sections of ^{62}Ni in the s-process energy range [Phys. Rev. C 66, 028802 (2002)]

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The contributions of the different partial waves to the direct capture (DC) cross section were not added up correctly, mainly leading to an overestimate of the p-wave contribution. With the proper values for s- and p-waves, eqs. (3) and (4) have to read

$$\sigma_{\rm high} = 1.1 \left(\frac{3.099 \times 10^{-2}}{\sqrt{E}} + 7.966 \times 10^{-7} \sqrt{E} \right) \quad ,$$

$$\sigma_{\rm low} = 0.9 \left(\frac{2.833 \times 10^{-2}}{\sqrt{E}} + 7.883 \times 10^{-7} \sqrt{E} \right) \quad .$$

Thus, the parameters X and Y to be used in eqs. (5) and (6) assume the values $X_{\rm low} = 2.5497 \times 10^{-2}$ barn keV$^{1/2}$, $Y_{\rm low} = 7.0947 \times 10^{-7}$ barn keV$^{-1/2}$, $X_{\rm high} = 3.4089 \times 10^{-2}$ barn keV$^{1/2}$, $Y_{\rm high} = 8.7626 \times 10^{-7}$ barn keV$^{-1/2}$. Figure 1 changes accordingly. With these values, the DC contribution to the Maxwellian Averaged Cross Section (MACS) at 30 keV is calculated as $4.7 \leq \langle\sigma\rangle_{\rm DC} \leq 6.2$ mb. The DC contribution is therefore dominated by s-waves and the p-waves are negligible, contrary to what was claimed in the original paper. When adding the resonance contribution of the original paper, the new 30 keV MACS is in the range of $9.7 \leq \langle\sigma\rangle_{\rm DC} \leq 11.2$ mb, in accordance with the recommended value given in [1].

Two recent measurements [2, 3] report 30 keV MACS compatible with the previous, incorrectly given result. While [2] only measured the MACS at one energy, the excitation function of [3] does not show any p-wave behavior. In light of this erratum, the agreement at 30 keV between the previous result and the experiments is regarded as fortuitous. Interpreting the corrected calculation and the experimental results, the MACS seems to have considerable contributions from both s-wave DC and previously unknown or underestimated (by ENSDF and JENDL) s-wave resonances.

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[1] Z. Y. Bao, H. Beer, F. Käppeler, F. Voss, K. Wisshak, and T. Rauscher, At. Data Nucl. Data Tables **76**, 70 (2000).

[2] H. Nassar, *et al.*, Phys. Rev. Lett. **94**, 092504 (2005).

[3] A. Tomyo, Y. Temma, M. Segawa, Y. Nagai, H. Makii, T. Shima, T. Ohsaki, and M. Igashira, Astrophys. J. Lett. **623**, L153 (2005).