Erratum: 62Ni(n,γ) and 63Ni(n,γ) cross sections measured at the n_TOF facility at CERN [Phys. Rev. C 89, 025810 (2014)]

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An error was discovered in the calculation of the statistical spin factor g_s, which was used for determining the capture kernels k_γ listed in Table II. This error occurred due to a typo in the formula for calculating g_s from the resonance parameters provided by SAMMY and affects only the values in Table II. The absolute values for the Maxwellian averaged cross sections are not affected, since those were calculated with the program SAMMY, directly on the basis of the correct parameters. Thus, the astrophysical implications remain unaltered.

However, the erroneous capture kernels in Table II had been used to determine the statistical uncertainties for the MACS values in Tables III and IV, corrections yield slightly reduced error bars of the n_TOF data in Fig. 6. Corrections in the text refer to the third sentence in the abstract, which should state: "With a total uncertainty of 4.4%,..." (instead of 4.5%). In Sec. I, the last sentence on p. 2 should read "Maxwellian averaged cross sections were determined from $kT = 5$ to 100 keV with uncertainties between 4.4 and 9.0%" (instead of "4.5 and 10.4%").

In addition, the following corrections are required: Typographical errors lead to minor changes in the enrichment factors of the ^{63}Ni sample in Table I and to one resonance energy in Table II (28427.5 eV instead of 28417.5 eV). The revised tables are given below. Equation (6) should not contain the factor π in the denominator, and reads correctly as

$$k_\gamma = \frac{2}{\lambda^2}\int_{-\infty}^{+\infty}\sigma(E)dE = g_s\frac{\Gamma_n\Gamma_\gamma}{\Gamma_n+\Gamma_\gamma}. \tag{6}$$

Furthermore, the units of all values for Γ_γ in Sec. IV A 1 should be "eV" (instead of "meV").

TABLE I. Sample characteristics. All samples were of cylindrical shape and 2 cm in diameter.

Sample	Mass (mg)	Enrichment (w%)		Thickness (10^{-3} atoms/b)	Chemical form
		^{62}Ni	^{63}Ni		
^{62}Ni	1989	98.0	–	6.20	Metal pellet
^{63}Ni	1156	69.2	8.7	5.68	Oxide grains
^{197}Au	596	–	–	0.584	Metal foil

TABLE II. Resonance energies E_R and capture kernels k_γ of the ^{62}Ni(n,γ) reaction. When possible, Γ_γ values have been fitted using spin assignments and Γ_n values from Beer and Spencer [1]. Resonances, which were not seen in any previous measurement are marked by an asterisk.

E_R (eV)	g_s	Γ_n (meV)	Γ_γ (meV)	k_γ (meV)	E_R (eV)	g_s	Γ_n (meV)	Γ_γ (meV)	k_γ (meV)
2128.6 ± 0.2				1.71 ± 0.13	$67911.8 \pm 2.6^*$				225 ± 84
4614.8 ± 6.8	1		2545 ± 143		$70892.9 \pm 3.2^*$				183 ± 34
8438.4 ± 1.1				33.1 ± 1.5	74419.6 ± 2.6				557 ± 45
9540.3 ± 0.7				439 ± 18	77463 ± 25	1	70000	265 ± 53	
$12225.4 \pm 1.7^*$				46.7 ± 7.5	78519.3 ± 8.1				389 ± 43
17791.5 ± 1.4				157.8 ± 6.7	$81469 \pm 31^*$				236 ± 40
$20602.3 \pm 1.5^*$				112.7 ± 5.3	93944 ± 46				340 ± 86
24621.9 ± 0.5				231 ± 10	95038 ± 1033	1	2500000	<1200	
28427.5 ± 3.0				373 ± 15	104168 ± 22				1114 ± 218
29507.1 ± 3.2				634 ± 26	106550 ± 1460	1	4600000	<3300	
$29960.1 \pm 2.4^*$				41.7 ± 5.9	113203.2 ± 6.7				624 ± 132
34473.5 ± 6.4				343 ± 35	120052 ± 47				970 ± 162
38279.5 ± 1.8				938 ± 51	$131919 \pm 15^*$				520 ± 109
40547.8 ± 2.2				170 ± 20	139011 ± 45				1510 ± 253
41241.6 ± 2.6				178 ± 35	144191 ± 25				1463 ± 404
43023 ± 19	1	340000	496 ± 45		$147713 \pm 32^*$				1704 ± 180
45137.1 ± 2.1				481 ± 28	149873 ± 66	1	140000	584 ± 117	
$53402.4 \pm 6.0^*$				243 ± 43	161745 ± 19				1672 ± 282
57024 ± 15				325 ± 46	$170593 \pm 21^*$				1208 ± 210
$57634 \pm 9^*$				212 ± 29	$180902 \pm 21^*$				1338 ± 272
63443.6 ± 2.9				270 ± 75	187175 ± 45	1	90000	1610 ± 296	

TABLE III. Maxwellian averaged cross sections of the ^{62}Ni(n,γ) reaction from 5 to 100 keV together with statistical and systematic uncertainties.

kT (keV)	MACS (mb)	Uncertainty (%)	
		Statistical	Systematic
5	181.2	0.6	5.2
10	83.2	0.6	4.9
15	50.8	0.7	4.8
20	35.8	0.8	4.4
25	27.4	1.0	4.3
30	22.2	1.3	4.2
40	16.0	2.0	$-4.1/+5.1$
50	12.5	2.6	$-4.1/+6.7$
60	10.2	3.1	$-4.0/+7.2$
80	7.44	3.8	$-3.9/+8.0$
100	5.75	4.2	$-3.8/+8.0$

TABLE IV. Contributions to the total uncertainties (in %) for the stellar ^{62}Ni(n,γ) cross sections (see text for details).

kT (keV)	5	30	100
Weighting functions	2	2	2
Normalization	1	1	1
Neutron flux shape	2.0	2.7	2.9
MS at $E_R = 4.6$ keV	4.2	2.3	0.9
Missing levels	–	–	+7
Counting statistics	0.6	1.3	4.2
Total	5.2	4.4	$-5.7/+9.0$

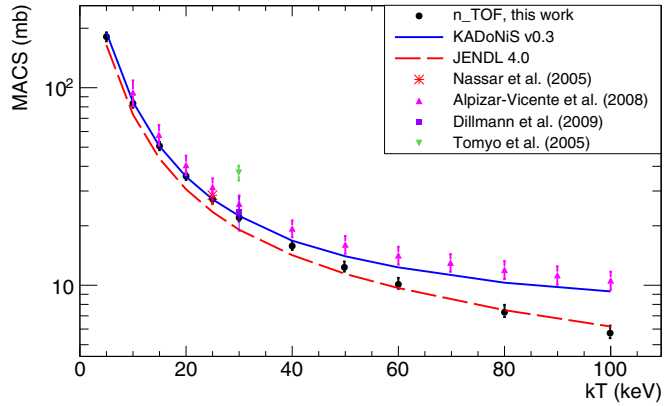

FIG. 6. (Color online) Maxwellian averaged cross sections from 5 to 100 keV compared to previous measurements (Alpizar-Vicente *et al.* [3], Nassar *et al.* [4], Dillmann *et al.* [5], and Tomyo *et al.* [2]). The results obtained with data from the JENDL-4.0 evaluation (dashed line, [6]) and the recommended MACS values of the KADoNiS compilation (solid line, [7]) are included as well.

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