



# Erratum: “Proton and Hydrogen Transport through Hydrogen Environments: Ionization and Stripping” (2021, ApJS, 252, 7)

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*Supporting material:* machine-readable table

Corrected data is provided here for ionization in  $H^+ + H$  for the laboratory collision energies between 50 and 10,000 keV regarding the integral and differential cross sections, as well as average values of kinematic parameters such as energy loss and projectile scattering angle.

The correction has been made through a small adjustment to the BIC to the CTMC results previously presented, which have some fluctuation owing to the inherent statistical uncertainty. This changes these integral cross sections, given here in Table 1, by an average of about 4.2%, and yields a smooth variation with  $E_{\text{lab}}$  and corrected agreement with the best available recommended data for  $300 \leq E_{\text{lab}} \leq 10,000$  keV.

It was also found that a very small number of outlier trajectories with numerical errors in the Monte Carlo calculations described in the published article, for  $50 \leq E_{\text{lab}} \leq 10,000$  keV, made unanticipatedly large contributions to the average kinematic parameters, particularly for  $\langle E_{\text{targ}} \rangle$ . Filtering out these outliers corrects the values and smoothness of variation of the parameters, tabulated here as well in Table 1. Changes to average values of the kinematic parameters due to this correction are predominantly on the order of a fraction of a percent to 1.5% for  $\langle E_{\text{loss}}^{\text{ioniz}} \rangle$ ,  $\langle \theta_{\text{proj}} \rangle$ ,  $\langle E_{\text{elec}} \rangle$ ,  $\langle \theta_{\text{elec}} \rangle$ , and  $\langle \theta_{\text{targ}} \rangle$ , but average more than 100% difference for  $\langle E_{\text{targ}} \rangle$  for which this numerical error turned out to be particularly large.

The correspondingly corrected singly and doubly differential cross sections are provided, as were the original results, via the Harvard Dataverse at doi:[10.7910/DVN/GN5SKT](https://doi.org/10.7910/DVN/GN5SKT).

**Table 1**Corrected Portion of the Results Reported in the Published Article: The Integral Cross Sections (Denoted “TCS” for Total Cross Section) along with the Average Values of the Kinematic Parameters of the Collision for Ionization in  $H^+ + H$  as a Function of Laboratory Energy

Energy (keV)	TCS (cm <sup>2</sup> )	$\langle E_{\text{loss}}^{\text{ioniz}} \rangle$ (eV)	$\langle \theta_{\text{proj}} \rangle$ (deg)	$\langle E_{\text{elec}} \rangle$ (eV)	$\langle \theta_{\text{elec}} \rangle$ (deg)	$\langle E_{\text{targ}} \rangle$ (eV)	$\langle \theta_{\text{targ}} \rangle$ (deg)
5.00E+01	1.41E-16	2.68E+01	1.93E-02	1.31E+01	3.47E+01	3.18E-02	1.05E+02
7.00E+01	1.36E-16	2.94E+01	1.68E-02	1.58E+01	3.90E+01	2.89E-02	1.07E+02
1.00E+02	1.13E-16	3.22E+01	1.46E-02	1.85E+01	4.42E+01	2.66E-02	1.08E+02
2.00E+02	6.93E-17	3.71E+01	1.10E-02	2.35E+01	5.45E+01	1.91E-02	1.06E+02
3.00E+02	5.18E-17	4.20E+01	9.72E-03	2.84E+01	5.87E+01	1.96E-02	1.04E+02
5.00E+02	3.48E-17	4.27E+01	7.38E-03	2.91E+01	6.62E+01	1.51E-02	1.01E+02
7.00E+02	2.63E-17	4.32E+01	6.15E-03	2.96E+01	7.08E+01	1.17E-02	9.86E+01
1.00E+03	1.93E-17	4.43E+01	5.09E-03	3.07E+01	7.39E+01	1.09E-02	9.72E+01
2.00E+03	1.04E-17	4.65E+01	3.54E-03	3.28E+01	7.89E+01	8.39E-03	9.49E+01
3.00E+03	7.16E-18	4.78E+01	2.86E-03	3.42E+01	8.11E+01	7.38E-03	9.38E+01
5.00E+03	4.46E-18	4.91E+01	2.19E-03	3.54E+01	8.35E+01	6.24E-03	9.26E+01
7.00E+03	3.26E-18	4.84E+01	1.83E-03	3.48E+01	8.47E+01	6.40E-03	9.20E+01
1.00E+04	2.33E-18	4.79E+01	1.51E-03	3.43E+01	8.56E+01	5.20E-03	9.16E+01

(This table is available in its entirety in machine-readable form.)

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