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ERRATUM

In the paper "Photoionization Cross Sections of He and H_2" by M. Yan, H. R. Sadeghpour, and A. Dalgarno (ApJ, 496, 1044 [1998]), the analytic representation of the H_2 photoionization cross sections (eqs. [17]–[19]) is given incorrectly. The cross sections for H_2 may be represented analytically by

$$\sigma_{H_2}(E) = 10^7(1 - 197.448x^{-0.5} + 438.823x^{-1} - 260.481x^{-1.5} + 17.915x^{-2}) \text{ barns}$$
$$\text{for } 15.4 < E < 18 \text{ eV} ,$$
$$\sigma_{H_2}(E) = (-145.528 + 351.394x^{0.5} - 274.294x + 74.320x^{1.5})/E(\text{keV})^{3.5} \text{ barns}$$
$$\text{for } 18 < E < 30 \text{ eV} ,$$
$$\sigma_{H_2}(E) = (65.304 - 91.762x^{0.5} + 51.778x - 9.364x^{1.5})/E(\text{keV})^{3.5} \text{ barns}$$
$$\text{for } 30 < E < 85 \text{ eV} ,$$
$$\sigma_{H_2}(E) = 45.57(1 - 2.003x^{-0.5} - 4.806x^{-1} + 50.577x^{-1.5} - 171.044x^{-2} + 231.608x^{-2.5} - 81.885x^{-3})/E(\text{keV})^{3.5} \text{ barns}$$
$$\text{for } E > 85 \text{ eV} .$$

The sum rules and the tabulated photoionization cross sections in Tables 6 and 7 are correct. The errors were drawn to our attention by the paper of J. Wilms, A. Allen, and R. McCray (ApJ, 542, 914 [2000]).

We point out that our recommended cross sections are constructed from the best available experimental and calculated data and modified to ensure that several sum rules are satisfied and to conform to the correct physical high-energy limit. We emphasize that the asymptotic ratio of the nonrelativistic photoionization cross sections of H_2 and H is given exactly as

$$\frac{\sigma_{H_2}}{\sigma_H} = 4\pi\langle\delta(\boldsymbol{r}_{1a})\rangle , \tag{2}$$

where $\langle\delta(\boldsymbol{r}_{1a})\rangle$ is the delta function matrix element at the position of nucleus a for electron 1. The numerical value of the ratio of cross sections is $\sigma_{H_2}/\sigma_H = 2.833$ at high energies. As noted by us and by Wilms, Allen, and McCray, where molecular hydrogen contributes to the total photoabsorption, this excess of the ratio over 2 can be important.