Molecular Hydrogen

Z = 2 Molecular Mass : $M_{\rm A} = 2.01588$

$\sigma_a(\mathrm{Mb}) = 109.76097 \, \dfrac{\mathrm{d}f}{\mathrm{d}E} \, (\mathrm{eV}^{-1})$

$\mu_m = \sigma_a \cdot N_{\rm A} \cdot M_{\rm A}^{-1}$

Table I. Discrete oscillator strength, f_n, for the Lyman bands.

Energy (eV)	f_n	λ (Å)	Energy (eV)	f_n	λ (Å)
1.1184E+01	1.6890E-03	1.1086E+03	1.3610E+01	3.9390E-03	9.1098E+02
1.1347E+01	5.7900E-03	1.0927E+03	1.3702E+01	3.2190E-03	9.0486E+02
1.1506E+01	1.1560E-02	1.0776E+03	1.3791E+01	2.6320E-03	8.9902E+02
1.1661E+01	1.7550E-02	1.0632E+03	1.3877E+01	2.1540E-03	8.9345E+02
1.1811E+01	2.2500E-02	1.0497E+03	1.3960E+01	1.7660E-03	8.8814E+02
1.1957E+01	2.5710E-02	1.0369E+03	1.4040E+01	1.4500E-03	8.8308E+02
1.2100E+01	2.7040E-02	1.0247E+03	1.4117E+01	1.1930E-03	8.7826E+02
1.2238E+01	2.6730E-02	1.0131E+03	1.4190E+01	9.8150E-04	8.7374E+02
1.2372E+01	2.5230E-02	1.0021E+03	1.4261E+01	8.0570E-04	8.6939E+02
1.2503E+01	2.2980E-02	9.9164E+02	1.4328E+01	6.6030E-04	8.6533E+02
1.2630E+01	2.0350E-02	9.8166E+02	1.4391E+01	5.4320E-04	8.6154E+02
1.2753E+01	1.7640E-02	9.7220E+02	1.4451E+01	4.5080E-04	8.5796E+02
1.2872E+01	1.5040E-02	9.6321E+02	1.4506E+01	3.7020E-04	8.5471E+02
1.2988E+01	1.2660E-02	9.5461E+02	1.4557E+01	2.9610E-04	8.5172E+02
1.3100E+01	1.0550E-02	9.4644E+02	1.4601E+01	2.2730E-04	8.4915E+02
1.3209E+01	8.7300E-03	9.3863E+02	1.4637E+01	1.6160E-04	8.4706E+02
1.3314E+01	7.1850E-03	9.3123E+02	1.4662E+01	8.6500E-05	8.4562E+02
1.3416E+01	5.8910E-03	9.2415E+02	1.4672E+01	1.2400E-05	8.4504E+02
1.3514E+01	4.8200E-03	9.1745E+02			

Table II. Discrete oscillator strength, f_n, for the Werner bands.

Energy (eV)	f_n	λ (Å)	Energy (eV)	f_n	λ (Å)
1.2285E+01	4.7600E-02	1.0092E+03	1.3947E+01	1.0990E-02	8.8897E+02
1.2571E+01	7.2840E-02	9.8627E+02	1.4119E+01	7.0980E-03	8.7814E+02
1.2840E+01	6.9820E-02	9.6561E+02	1.4273E+01	2.5920E-03	8.6866E+02
1.3094E+01	5.4720E-02	9.4688E+02	1.4408E+01	2.9760E-03	8.6052E+02
1.3332E+01	3.8740E-02	9.2997E+02	1.4522E+01	1.9090E-03	8.5377E+02
1.3553E+01	2.5980E-02	9.1481E+02	1.4611E+01	1.1710E-03	8.4857E+02
1.3758E+01	1.7000E-02	9.0118E+02	1.4672E+01	5.5900E-04	8.4504E+02

Table III. Discrete oscillator strength, f_n, for $X^1\Sigma_g^+ \rightarrow 3p\sigma_u$, B'^{1} Σ_u^+ transitions.

Energy (eV)	f_n	λ (Å)	Energy (eV)	f_n	λ (Å)
1.3698E+01	2.9200E-03	9.0513E+02	1.4613E+01	3.1100E-03	8.4845E+02
1.3931E+01	5.9900E-03	8.8999E+02	1.4651E+01	3.4000E-04	8.4625E+02
1.4144E+01	7.3400E-03	8.7659E+02	1.4664E+01	3.3000E-04	8.4550E+02
1.4333E+01	7.0000E-03	8.6503E+02	1.4672E+01	2.2000E-04	8.4504E+02
1.4494E+01	5.5500E-03	8.5542E+02			

Table IV. Discrete oscillator strength, f_n, for $X^1\Sigma_g^+ \rightarrow 3p\pi_u$, D^1 Π_u transitions.

Energy (eV)	f_n	λ (Å)	Energy (eV)	f_n	λ (Å)
1.3994E+01	9.0100E-03	8.8598E+02	1.5772E+01	2.2800E-03	7.8610E+02
1.4270E+01	1.5230E-02	8.6884E+02	1.5928E+01	1.5500E-03	7.7840E+02
1.4530E+01	1.5900E-02	8.5330E+02	1.6068E+01	1.0600E-03	7.7162E+02
1.4775E+01	1.3440E-02	8.3915E+02	1.6191E+01	7.3000E-04	7.6576E+02
1.5003E+01	1.0150E-02	8.2640E+02	1.6299E+01	5.0000E-04	7.6069E+02
1.5218E+01	7.2000E-03	8.1472E+02	1.6390E+01	3.4000E-04	7.5646E+02
1.5418E+01	4.9800E-03	8.0415E+02	1.6462E+01	2.3000E-04	7.5315E+02
1.5602E+01	3.3900E-03	7.9467E+02	1.6516E+01	1.4000E-04	7.5069E+02

Table V. Discrete oscillator strength, f_n, for $X^1\Sigma_g^+ \rightarrow$ higher Rydberg states (up to IP) transitions.

Energy (eV)	f_n	λ (Å)	Energy (eV)	f_n	λ (Å)
1.4598E+01	1.5000E-04	8.4932E+02	1.5181E+01	7.3000E-04	8.1671E+02
1.4872E+01	4.4800E-03	8.3368E+02	1.4840E+01	4.2200E-03	8.3547E+02
1.5135E+01	4.2500E-03	8.1919E+02	1.5105E+01	5.5300E-03	8.2082E+02
1.5368E+01	5.6200E-03	8.0677E+02	1.5357E+01	2.1500E-03	8.0735E+02
1.4740E+01	8.4800E-03	8.4114E+02	1.5132E+01	2.7800E-03	8.1935E+02
1.4975E+01	7.1100E-03	8.2794E+02	1.5401E+01	2.2200E-03	8.0504E+02
1.5203E+01	4.1200E-03	8.1552E+02	1.5050E+01	2.4100E-03	8.2382E+02
1.5402E+01	2.5900E-03	8.0499E+02	1.5329E+01	1.5900E-03	8.0882E+02
1.4886E+01	9.9000E-04	8.3289E+02	1.5024E+01	4.8900E-03	8.2524E+02
1.5141E+01	8.8000E-04	8.1886E+02	1.5294E+01	1.2100E-03	8.1067E+02

Table VI. Discrete oscillator strength, f_n, attributed to predissociation above the IP.

Energy (eV)	f_n	λ (Å)	Energy (eV)	f_n	λ (Å)
1.5576E+01	1.0000E-03	7.9600E+02	1.5828E+01	2.0000E-04	7.8330E+02
1.5586E+01	1.0000E-03	7.9550E+02	1.5895E+01	6.0000E-04	7.8000E+02
1.5601E+01	2.4000E-03	7.9470E+02	1.5906E+01	1.3000E-03	7.7950E+02
1.5601E+01	1.5000E-03	7.9470E+02	1.6029E+01	1.5000E-03	7.7350E+02
1.5664E+01	7.0000E-04	7.9150E+02	1.6039E+01	1.5000E-03	7.7300E+02
1.5674E+01	1.6000E-03	7.9100E+02	1.6112E+01	4.0000E-04	7.6950E+02
1.5754E+01	1.4000E-03	7.8700E+02	1.6169E+01	4.0000E-04	7.6680E+02
1.5774E+01	2.0000E-04	7.8600E+02	1.6207E+01	7.0000E-04	7.6500E+02
1.5814E+01	6.0000E-04	7.8400E+02			

Table VII. Autoionization oscillator strengths, f_n, in H_2.

Energy (eV)	f_n	λ (Å)	Energy (eV)	f_n	λ (Å)
1.5435E+01	1.2000E-03	8.0326E+02	1.5657E+01	9.0000E-05	7.9186E+02
1.5437E+01	1.7000E-04	8.0316E+02	1.5660E+01	1.4000E-04	7.9172E+02
1.5482E+01	9.4000E-04	8.0085E+02	1.5832E+01	2.2000E-04	7.8311E+02
1.5502E+01	5.0000E-05	7.9981E+02	1.5837E+01	5.0000E-05	7.8289E+02
1.5528E+01	5.3000E-04	7.9845E+02	1.5843E+01	2.8000E-04	7.8260E+02
1.5542E+01	2.6000E-04	7.9773E+02	1.5855E+01	1.2000E-04	7.8200E+02
1.5550E+01	2.7000E-04	7.9731E+02	1.5861E+01	1.6000E-04	7.8169E+02
1.5562E+01	5.7000E-04	7.9672E+02	1.5871E+01	1.7000E-04	7.8118E+02
1.5577E+01	4.0000E-05	7.9592E+02	1.5876E+01	5.0000E-05	7.8093E+02
1.5606E+01	4.5000E-04	7.9446E+02	1.5884E+01	1.5000E-04	7.8056E+02
1.5595E+01	5.0000E-05	7.9500E+02	1.5894E+01	1.6000E-04	7.8008E+02
1.5600E+01	1.0000E-05	7.9475E+02	1.5899E+01	1.3000E-04	7.7983E+02
1.5606E+01	3.1000E-04	7.9448E+02	1.5901E+01	7.2000E-04	7.7971E+02
1.5608E+01	2.0000E-05	7.9435E+02	1.5903E+01	6.0000E-04	7.7964E+02
1.5617E+01	3.0000E-04	7.9392E+02	1.5907E+01	1.4000E-04	7.7943E+02
1.5619E+01	8.0000E-05	7.9382E+02	1.5911E+01	3.0000E-05	7.7923E+02
1.5629E+01	1.6000E-04	7.9330E+02	1.5913E+01	5.0000E-05	7.7916E+02
1.5635E+01	3.0000E-05	7.9298E+02	1.5923E+01	9.0000E-05	7.7863E+02
1.5638E+01	8.0000E-05	7.9282E+02	1.5925E+01	5.0000E-05	7.7853E+02
1.5644E+01	8.0000E-05	7.9251E+02	1.5927E+01	2.0000E-05	7.7846E+02
1.5651E+01	9.0000E-05	7.9218E+02	1.5928E+01	8.0000E-05	7.7838E+02
1.5655E+01	2.0000E-05	7.9197E+02	1.5930E+01	1.0000E-04	7.7830E+02

Table VII. Autoionization oscillator strengths, f_n, in H_2. (Continued)

Energy (eV)	f_n	λ (Å)	Energy (eV)	f_n	λ (Å)
1.5932E+01	1.7000E-04	7.7822E+02	1.6114E+01	6.9000E-04	7.6943E+02
1.5973E+01	3.0000E-04	7.7619E+02	1.6126E+01	3.9000E-04	7.6886E+02
1.5986E+01	6.0000E-05	7.7556E+02	1.6131E+01	2.1000E-04	7.6860E+02
1.5996E+01	1.4000E-04	7.7510E+02	1.6134E+01	1.3000E-04	7.6846E+02
1.5663E+01	1.6000E-04	7.9158E+02	1.6140E+01	1.8000E-04	7.6818E+02
1.5664E+01	3.1000E-04	7.9150E+02	1.6147E+01	1.5000E-04	7.6785E+02
1.5666E+01	7.3000E-04	7.9140E+02	1.6152E+01	7.0000E-05	7.6760E+02
1.5667E+01	3.8000E-04	7.9137E+02	1.6155E+01	3.0000E-04	7.6746E+02
1.5670E+01	3.2000E-04	7.9124E+02	1.6210E+01	2.9000E-04	7.6488E+02
1.5671E+01	1.6000E-04	7.9118E+02	1.6217E+01	4.3000E-04	7.6453E+02
1.5672E+01	8.0000E-05	7.9112E+02	1.6232E+01	6.2000E-04	7.6381E+02
1.5674E+01	1.6000E-04	7.9101E+02	1.6250E+01	9.3000E-04	7.6300E+02
1.5675E+01	3.0000E-04	7.9095E+02	1.6272E+01	4.1000E-04	7.6197E+02
1.5677E+01	6.1000E-04	7.9086E+02	1.6284E+01	2.2000E-04	7.6140E+02
1.5679E+01	3.0000E-05	7.9077E+02	1.6308E+01	2.4000E-04	7.6027E+02
1.5681E+01	3.0000E-05	7.9064E+02	1.6310E+01	4.7000E-04	7.6016E+02
1.5682E+01	3.0000E-05	7.9060E+02	1.6327E+01	1.3000E-04	7.5940E+02
1.5683E+01	3.0000E-05	7.9055E+02	1.6338E+01	3.3000E-04	7.5886E+02
1.5691E+01	2.7000E-04	7.9014E+02	1.6343E+01	5.0000E-05	7.5865E+02
1.5736E+01	8.1000E-04	7.8790E+02	1.6350E+01	2.0000E-04	7.5831E+02
1.5755E+01	2.3000E-04	7.8697E+02	1.6360E+01	1.5000E-04	7.5786E+02
1.5763E+01	4.0000E-05	7.8655E+02	1.6364E+01	1.8000E-04	7.5765E+02
1.5777E+01	3.4000E-04	7.8584E+02	1.6422E+01	2.4300E-03	7.5500E+02
1.5786E+01	6.0000E-04	7.8543E+02	1.6458E+01	5.7000E-04	7.5333E+02
1.5800E+01	9.0000E-05	7.8470E+02	1.6468E+01	2.3000E-04	7.5288E+02
1.5817E+01	3.0000E-05	7.8385E+02	1.6489E+01	3.7000E-04	7.5190E+02
1.5821E+01	1.8900E-03	7.8368E+02	1.6493E+01	2.2000E-04	7.5174E+02
1.5829E+01	6.6000E-04	7.8326E+02	1.6520E+01	2.3000E-04	7.5053E+02
1.6025E+01	5.0000E-05	7.7369E+02	1.6534E+01	2.0000E-04	7.4988E+02
1.6030E+01	1.3500E-03	7.7346E+02	1.6537E+01	1.0000E-04	7.4972E+02
1.6040E+01	6.0000E-05	7.7295E+02	1.6552E+01	6.0000E-05	7.4905E+02
1.6048E+01	1.0000E-04	7.7258E+02	1.6559E+01	2.1000E-04	7.4873E+02
1.6057E+01	8.4000E-04	7.7215E+02	1.6570E+01	4.0000E-05	7.4825E+02
1.6061E+01	7.0000E-05	7.7195E+02	1.6579E+01	4.0000E-05	7.4786E+02
1.6082E+01	2.7000E-04	7.7093E+02	1.6649E+01	4.9000E-04	7.4470E+02
1.6102E+01	1.5000E-04	7.7000E+02	1.6665E+01	9.0000E-05	7.4400E+02

Table VII. Autoionization oscillator strengths, f_n, in H_2. (Continued)

Energy (eV)	f_n	λ (Å)	Energy (eV)	f_n	λ (Å)
1.6693E+01	1.6000E-04	7.4275E+02	1.6800E+01	8.0000E-05	7.3802E+02
1.6716E+01	1.0000E-04	7.4171E+02	1.6802E+01	1.0000E-05	7.3790E+02
1.6735E+01	8.0000E-05	7.4088E+02	1.6804E+01	4.0000E-05	7.3783E+02
1.6742E+01	1.0000E-04	7.4054E+02	1.6818E+01	1.4000E-04	7.3722E+02
1.6749E+01	2.0000E-05	7.4025E+02	1.6900E+01	8.0000E-05	7.3363E+02
1.6757E+01	3.0000E-05	7.3989E+02	1.6932E+01	3.0000E-05	7.3226E+02
1.6761E+01	3.0000E-05	7.3974E+02	1.6943E+01	3.0000E-05	7.3178E+02
1.6769E+01	2.0000E-05	7.3936E+02	1.6945E+01	2.0000E-05	7.3169E+02
1.6775E+01	1.0000E-05	7.3910E+02	1.6951E+01	4.0000E-05	7.3143E+02
1.6777E+01	1.0000E-05	7.3902E+02	1.6955E+01	3.0000E-05	7.3124E+02
1.6781E+01	1.0000E-05	7.3882E+02	1.6958E+01	4.0000E-05	7.3112E+02
1.6790E+01	8.0000E-05	7.3846E+02	1.6963E+01	5.0000E-05	7.3090E+02
1.6794E+01	1.2000E-04	7.3827E+02	1.6969E+01	5.0000E-05	7.3067E+02
1.6796E+01	4.0000E-05	7.3819E+02	1.6974E+01	2.0000E-05	7.3045E+02
1.6798E+01	2.0000E-05	7.3811E+02	1.6975E+01	1.0000E-05	7.3039E+02

Table VIII. Oscillator-strength density, $\mathrm{d}f/\mathrm{d}E$, photoabsorption cross section, σ_a, and mass absorption coefficient, μ_m.

Energy (eV)	f_n (eV^{-1})	σ_a (Mb)	μ_m ($\mathrm{cm}^2\ \mathrm{g}^{-1}$)	λ (Å)
1.5426E+01	1.3000E-02	1.4269E+00	4.2626E+05	8.0375E+02
1.7500E+01	9.5900E-02	1.0526E+01	3.1445E+06	7.0848E+02
2.0000E+01	6.9491E-02	7.6274E+00	2.2786E+06	6.1992E+02
2.2500E+01	5.1997E-02	5.7073E+00	1.7050E+06	5.5104E+02
2.5000E+01	3.9655E-02	4.3525E+00	1.3003E+06	4.9594E+02
2.7500E+01	3.0576E-02	3.3561E+00	1.0026E+06	4.5085E+02
3.0000E+01	2.3747E-02	2.6065E+00	7.7867E+05	4.1328E+02
3.5000E+01	1.4511E-02	1.5927E+00	4.7581E+05	3.5424E+02
4.0000E+01	9.0128E-03	9.8925E-01	2.9552E+05	3.0996E+02
4.5000E+01	6.1142E-03	6.7110E-01	2.0048E+05	2.7552E+02
5.0000E+01	4.3434E-03	4.7674E-01	1.4242E+05	2.4797E+02
6.0000E+01	2.3988E-03	2.6329E-01	7.8655E+04	2.0664E+02
7.0000E+01	1.4303E-03	1.5699E-01	4.6900E+04	1.7712E+02
8.0000E+01	8.9118E-04	9.7817E-02	2.9221E+04	1.5498E+02
9.0000E+01	6.0117E-04	6.5985E-02	1.9712E+04	1.3776E+02
1.0000E+02	4.3345E-04	4.7576E-02	1.4213E+04	1.2398E+02

Table VIII. Oscillator-strength density, $\mathrm{d}f/\mathrm{d}E$, photoabsorption cross section, σ_{a}, and mass absorption coefficient, μ_{m}. (Continued)

Energy (eV)	f_n (eV^{-1})	σ_a (Mb)	μ_{m} ($\mathrm{cm}^2\ \mathrm{g}^{-1}$)	λ (Å)
1.2500E+02	2.1951E-04	2.4094E-02	7.1978E+03	9.9187E+01
1.5000E+02	1.2004E-04	1.3176E-02	3.9360E+03	8.2656E+01
1.7500E+02	7.4923E-05	8.2236E-03	2.4567E+03	7.0848E+01
2.0000E+02	4.9610E-05	5.4452E-03	1.6267E+03	6.1992E+01
2.2500E+02	3.4339E-05	3.7691E-03	1.1260E+03	5.5104E+01
2.5000E+02	2.4686E-05	2.7096E-03	8.0945E+02	4.9594E+01
2.7500E+02	1.8326E-05	2.0115E-03	6.0091E+02	4.5085E+01
3.0000E+02	1.3771E-05	1.5116E-03	4.5156E+02	4.1328E+01
3.5000E+02	8.4064E-06	9.2270E-04	2.7564E+02	3.5424E+01
4.0000E+02	5.5759E-06	6.1202E-04	1.8283E+02	3.0996E+01
4.5000E+02	3.9046E-06	4.2857E-04	1.2803E+02	2.7552E+01
5.0000E+02	2.8404E-06	3.1177E-04	9.3136E+01	2.4797E+01
6.0000E+02	1.6264E-06	1.7852E-04	5.3329E+01	2.0664E+01
7.0000E+02	1.0009E-06	1.0986E-04	3.2819E+01	1.7712E+01
8.0000E+02	6.4705E-07	7.1021E-05	2.1216E+01	1.5498E+01
9.0000E+02	4.3335E-07	4.7565E-05	1.4209E+01	1.3776E+01
1.0000E+03	2.9781E-07	3.2688E-05	9.7652E+00	1.2398E+01
1.2500E+03	1.2487E-07	1.3706E-05	4.0945E+00	9.9187E+00
1.5000E+03	5.3812E-08	5.9065E-06	1.7645E+00	8.2656E+00
1.7500E+03	4.5596E-08	5.0047E-06	1.4951E+00	7.0848E+00
2.0000E+03	2.8916E-08	3.1739E-06	9.4814E-01	6.1992E+00
2.2500E+03	1.9416E-08	2.1311E-06	6.3665E-01	5.5104E+00
2.5000E+03	1.3620E-08	1.4949E-06	4.4658E-01	4.9594E+00
2.7500E+03	9.8886E-09	1.0854E-06	3.2424E-01	4.5085E+00
3.0000E+03	7.3825E-09	8.1031E-07	2.4207E-01	4.1328E+00
3.5000E+03	4.3918E-09	4.8205E-07	1.4400E-01	3.5424E+00
4.0000E+03	2.7908E-09	3.0632E-07	9.1509E-02	3.0996E+00
4.5000E+03	1.8626E-09	2.0444E-07	6.1074E-02	2.7552E+00
5.0000E+03	1.2909E-09	1.4169E-07	4.2327E-02	2.4797E+00
6.0000E+03	6.7382E-10	7.3959E-08	2.2094E-02	2.0664E+00
7.0000E+03	3.8030E-10	4.1742E-08	1.2470E-02	1.7712E+00
8.0000E+03	2.2606E-10	2.4813E-08	7.4124E-03	1.5498E+00
9.0000E+03	1.3894E-10	1.5250E-08	4.5556E-03	1.3776E+00
1.0000E+04	8.6984E-11	9.5474E-09	2.8522E-03	1.2398E+00
1.2500E+04	5.5394E-11	6.0801E-09	1.8163E-03	9.9187E-01
1.5000E+04	2.9520E-11	3.2401E-09	9.6793E-04	8.2656E-01

Table VIII. Oscillator-strength density, $\mathrm{d}f/\mathrm{d}E$, photoabsorption cross section, σ_{a}, and mass absorption coefficient, μ_{m}. (Continued)

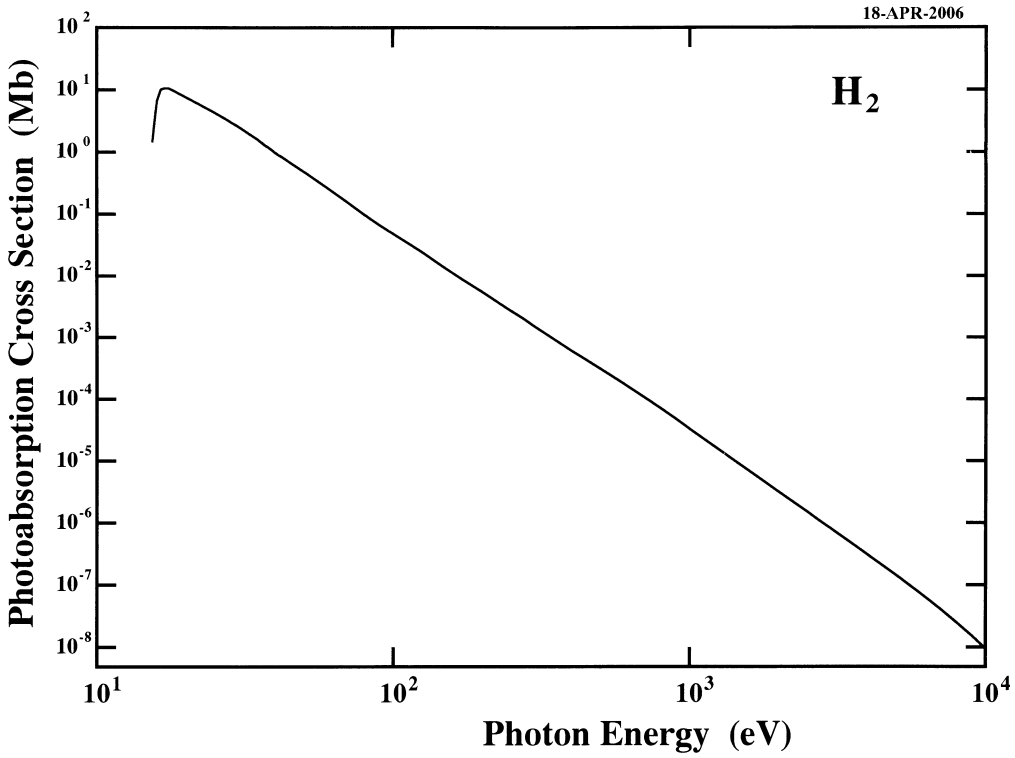
Energy (eV)	f_n (eV^{-1})	σ_a (Mb)	μ_{m} ($\mathrm{cm}^2\ \mathrm{g}^{-1}$)	λ (Å)
1.7500E+04	1.7328E-11	1.9019E-09	5.6817E-04	7.0848E-01
2.0000E+04	1.0918E-11	1.1984E-09	3.5800E-04	6.1992E-01
2.2500E+04	7.2627E-12	7.9716E-10	2.3814E-04	5.5104E-01
2.5000E+04	5.0422E-12	5.5343E-10	1.6533E-04	4.9594E-01
2.7500E+04	3.6240E-12	3.9777E-10	1.1883E-04	4.5085E-01
3.0000E+04	2.6803E-12	2.9419E-10	8.7886E-05	4.1328E-01
3.5000E+04	1.5703E-12	1.7236E-10	5.1489E-05	3.5424E-01
4.0000E+04	9.8788E-13	1.0843E-10	3.2392E-05	3.0996E-01
4.5000E+04	6.5627E-13	7.2032E-11	2.1519E-05	2.7552E-01
5.0000E+04	4.5512E-13	4.9954E-11	1.4923E-05	2.4797E-01
6.0000E+04	2.4150E-13	2.6507E-11	7.9186E-06	2.0664E-01
7.0000E+04	1.4129E-13	1.5508E-11	4.6327E-06	1.7712E-01
8.0000E+04	8.8784E-14	9.7450E-12	2.9112E-06	1.5498E-01
9.0000E+04	5.8926E-14	6.4677E-12	1.9321E-06	1.3776E-01
1.0000E+05	4.0832E-14	4.4818E-12	1.3389E-06	1.2398E-01

For atomic hydrogen, the oscillator-strength density (in Rydberg unit) in the continuum is given by

$$\mathrm{d}f/\mathrm{d}E \;=\; \frac{2^7}{3\,(1+k^2)^4}\;\exp\Big(-\frac{4}{k}\,\tan^{-1}k\Big)\;\Big[\,1-\exp\Big(-\frac{2\pi}{k}\Big)\,\Big]^{-1},$$

where $\epsilon = k^2$ is the electron kinetic energy, and incident photon energy $E = 1 + \epsilon$. Here energies are given in Rydberg unit. This expression is used to calculate $\sigma(\mathrm{H})$, the photoabsorption cross section, from 10 keV to infinity. In this energy interval, the photoabsorption cross section of molecular hydrogen, $\sigma(\mathrm{H_2})$, is given as

$$\sigma(\mathrm{H_2}) \;=\; 2.888 \times \sigma(\mathrm{H}).$$


18-APR-2006
H2
Photoabsorption Cross Section (Mb)
Photon Energy (eV)
10 2
10 1
10 0
10-1
10-2
10-3
10-4
10-5
10-6
10-7
10-8
101
102
103
104