

Table 9. Photon energies (E_p 's) and orbital radii (r/R_s) used for the construction of Fig. 13. The individual pairings of E_p 's and r/R_s 's are determined by first pairing $E_p(7,\infty)$ not only with the inner radius of the A ring but also with the inner and out radius of the C ring. Then the other pairings automatically fall into place.

Satellite or Ring Edge Name	[i] ^a	r/R_s ^b	n_f, n_i ^c	$E_p(n_f, n_i)$ ^c (cm ⁻¹)
Saturn's Equatorial radius		1.000		
Inner Edge D ring	[29]	1.110	6, ∞	3048.3
D68 ringlet	[28]	1.122 ^d	5,9	3034.7
D72 ringlet	[27]	1.187 ^d	5,8	2674.8
D73 ringlet	[26]	1.216 ^d	4,5	2469.1
Outer Edge D ring		1.236		
Inner Edge C ring	[25]	1.239	7, ∞	2239.5
Titan ringlet in Colombo Gap	[24]		5,7	2149.9
Titan ringlet in Colombo Gap	[24]		6,11	2141.3
Average Titan ringlet E_p 's	[24]	1.292		2145.7
Maxwell ringlet in Maxwell Gap	[23]		6,11	2141.3
Maxwell ringlet in Maxwell Gap	[23]		5,7	2149.9
Average Maxwell ringlet E_p 's	[23]	1.452		2145.7
Outer Edge C ring	[22]	1.526	7, ∞	2239.5
Inner Edge B ring		1.526		
Outer Edge B ring		1.950		
Huygens ringlet in Huygens Gap	[21]	1.955 ^e	6,13	2398.9
Laplace ringlet in Laplace Gap	[20]	1.992 ^e	6,12	2286.2
Inner Edge A ring	[1]	2.030	7, ∞ ^f	2239.5
Pan in Encke Gap	[2]		5,7	2149.9
Pan in Encke Gap	[2]		6,11	2141.4
Average Pan E_p 's	[2]	2.217		2145.7
Daphnis and Keeler Gap	[3]	2.265	7,20	1965.2
Outer Edge A ring		2.270		

^a Indices in Tables 8 and 9 and Fig. 14

^b Orbital radii of satellites and rings in units of the equatorial radius of Saturn and are from NASA (2021) except as otherwise noted.

^c The quantum numbers that define transitions in the hydrogen atom and photon energies associated with these transitions.

^d Hedman et al. (2007)

^e French et al. (2020) Fig. 2

