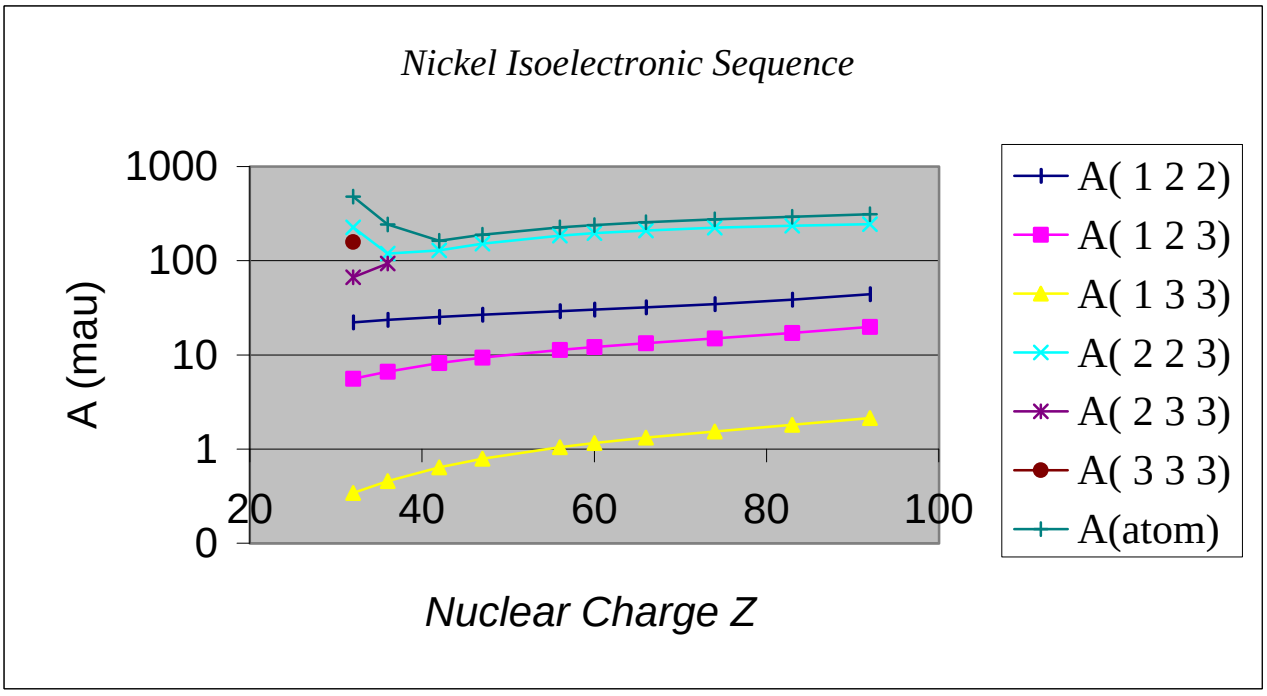
Autoionization rates for the Nickel Isoelectronic Sequence (m.a.u.) : A(n1,n2,n3)

rates are summed over all possible angular momentum substates

	A(1 2 2)	A(1 2 3)	A(1 3 3)	A(2 2 3)	A(2 3 3)	A(3 3 3)	A(atom)
32	22.19	5.57	0.34	226.34	66.78	157.86	479.09
36	23.55	6.66	0.46	119.40	93.29		243.35
42	25.36	8.21	0.64	128.29			162.49
47	26.75	9.39	0.79	152.17			189.10
56	29.16	11.32	1.05	184.83			226.36
60	30.25	12.14	1.16	195.96			239.50
66	31.99	13.34	1.32	209.69			256.35
74	34.66	15.01	1.54	223.77			274.98
83	38.49	17.14	1.81	235.59			293.03
92	43.93	19.87	2.14	244.92			310.85



Comparisons of Autoionization rates for a 2s hole in Ni-like Ag (Z=47)

HF: filled core Hartree-Fock results (present calculations)
Slater: Mau Chen's Slater average with hole is 2s shell average

i) HF energies are 5% too large
ii) HF rates are 3-10% too small

	HF 1/sec	HF eV	Slater 1/sec	Slater eV
A(2s 3s 3s)	6.21E+13	1906.8	6.36E+13	1870.7
A(2s 3s 3p*)	1.23E+14	2020.1	1.26E+14	1971.5
A(2s 3s 3p)	2.33E+14	2053.2	2.38E+14	2005.2
A(2s 3s 3d*)	1.81E+14	2249.9	1.92E+14	2182.2
A(2s 3s 3d)	2.59E+14	2256.6	2.75E+14	2189.4
A(2s 3p* 3p*)	9.43E+11	2133.4	9.20E+11	2072.4
A(2s 3p* 3p)	6.31E+12	2166.5	7.41E+12	2106.0
A(2s 3p* 3d*)	3.87E+12	2363.2	4.21E+12	2283.0
A(2s 3p* 3d)	6.38E+13	2369.9	6.93E+13	2290.3
A(2s 3p 3p)	6.00E+12	2199.6	6.41E+12	2139.7
A(2s 3p 3d*)	4.95E+13	2396.3	5.33E+13	2316.7
A(2s 3p 3d)	3.58E+13	2403.0	3.82E+13	2323.9
A(2s 3d* 3d*)	8.83E+12	2593.0	1.00E+13	2493.7
A(2s 3d* 3d)	3.62E+14	2599.7	4.02E+14	2501.0
A(2s 3d 3d)	1.01E+14	2606.4	1.13E+14	2508.2
A(2s)	1.50E+15		1.60E+15	

Example of partial summations for Ni-like Ag (Z=47)

Notation: p* = p1/2 p = p3/2
Units (a.u.)

n1 l1	n2 l2	n3 l3	A	1s n2l2 n3	A	1s n2 n3	A(1s,n2,n3)
1s	2s	2s	2.50E-03				
1s	2s	2p*	3.05E-03				
1s	2s	2p	4.52E-03	1s 2s 2	1.01E-02		
1s	2s	3s	8.53E-04				
1s	2s	3p*	5.55E-04				
1s	2s	3p	8.28E-04				
1s	2s	3d*	4.72E-05				
1s	2s	3d	5.89E-05	1s 2s 3	2.34E-03		
1s	2p*	2p*	4.72E-04				
1s	2p*	2p	1.07E-02	1s 2p* 2	1.12E-02		
1s	2p*	3s	4.36E-04				
1s	2p*	3p*	1.61E-04				
1s	2p*	3p	1.67E-03				
1s	2p*	3d*	6.17E-05				
1s	2p*	3d	2.05E-04	1s 2p* 3	2.54E-03		
1s	2p	2p	5.46E-03	1s 2p 2	5.46E-03	1s 2 2	2.68E-02
1s	2p	3s	6.44E-04				
1s	2p	3p*	1.63E-03				
1s	2p	3p	1.73E-03				
1s	2p	3d*	2.70E-04				
1s	2p	3d	2.43E-04	1s 2p 3	4.51E-03	1s 2 3	9.39E-03
1s	3s	3s	7.16E-05				
1s	3s	3p*	7.99E-05				
1s	3s	3p	1.18E-04				
1s	3s	3d*	6.08E-06				
1s	3s	3d	7.54E-06	1s 3s 3	2.84E-04		
1s	3p*	3p*	1.29E-05				
1s	3p*	3p	2.56E-04				
1s	3p*	3d*	6.99E-06				
1s	3p*	3d	2.44E-05	1s 3p* 3	3.00E-04		
1s	3p	3p	1.36E-04				
1s	3p	3d*	3.41E-05				
1s	3p	3d	2.97E-05	1s 2p 3	2.00E-04		
1s	3d*	3d*	1.26E-08				
1s	3d*	3d	3.46E-06	1s 3d* 3	3.47E-06		
1s	3d	3d	8.39E-07	1s 3d 3	8.39E-07	1s 3 3	7.88E-04
1s	total		3.69E-02		3.69E-02		3.69E-02