

Ionizations and “Shadows” from Small Molecules

Important Ionization Energies:

Ar:	15.759 eV
He:	24.59 eV
O ₂ :	12.30 eV
N ₂ :	15.60 eV
CO:	14.01 eV
H ₂ O:	12.62 eV
Xe:	12.13 eV
Kr:	14.00 eV
Ne:	19.70 eV

Important Photon Energies:

He I α :	21.2182 eV
He I β :	23.0848 eV
He I γ :	23.7423 eV
He II α :	40.8140 eV
He II β :	48.3718 eV
He II γ :	51.0170 eV
He II δ :	52.2415 eV
Ne I α :	16.6709, 16.8482 eV
Ne I β :	19.6882, 19.7799 eV

In He I α mode:

Ionized Species:	Ar			He
	He I α	He I β	He I γ	He II α
Photon:				
Kinetic Energy:	5.46	7.33	7.98	16.23
Apparent Ionization Energy:	15.76	13.89	13.24	4.99

In He II α mode:

Ionized Species:	Ar						He			
	He II α	He II β	He II γ	He II δ	He I α	He I β	He II α	He II β	He II γ	He II δ
Photon:										
Kinetic Energy:	25.05	32.61	35.26	36.48	5.46	7.33	16.23	23.78	26.43	27.65
Apparent Ionization Energy:	15.76	8.20	5.56	4.33	35.36	33.49	24.59	17.03	14.38	13.16

In Ne I α mode:

Ionized Species:	Xe					Ar				Ne		
	Ne I α	He I α	He I β	He I γ	Ne I β	He I α	He I β	He I γ	Ne I β	He I α	He I β	He I γ
Photon:												
Kinetic Energy:	4.72	9.09	13.95	11.61	7.65	5.46	7.33	7.98	4.02	1.52	3.39	4.05
Apparent Ionization Energy:	12.13	7.76	5.89	5.24	9.20	11.39	9.52	8.86	12.83	15.32	13.45	12.80