Photoionization problems in astrophysics
– current problems and new frontiers
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A wide variety of astrophysical objects, ranging from newly formed stars to accreting black holes, produce ionizing radiation. Surrounding diffuse material will reprocess this ionizing radiation into other forms of light by photoionization. Photoionized clouds are detected across the electromagnetic spectrum, producing both emission and absorption spectral features. Detailed analysis of the spectrum can reveal such vital parameters as the composition of the gas and the form of the ionizing radiation field. I will outline some of the current physics and astrophysics problems that are touched by current research problems in this field.