The Photo Dissociation Region Toolbox

Marc W. Pound and Mark G. Wolfire

Astronomy Dept., University of Maryland, College Park, MD 20742
mpound@umd.edu
mwolfire@astro.umd.edu

Ultraviolet photons from young, hot stars play an important role in controlling the structure and emission spectra of the interstellar medium. The most obvious expressions of this influence are H II regions, the ionized gas surrounding massive star-forming regions. The sharp edges of H II regions mark the limit of influence of H-ionizing but far-ultraviolet (FUV) photons (6 eV < $h\nu$ < 13.6 eV) play important roles in the chemistry, heating, and ionization balance of photodissociation regions (PDRs) that lie beyond the H II regions.

As part of the Web Infrared Tool Shed (WITS; http://dustem.astro.umd.edu) we have developed a web tool, called the PDR Toolbox, that allows users to determine the physical parameters of a PDR from a set of spectral line observations. Typical observations of both Galactic and extragalactic PDRs come from ground-based millimeter and submillimeter telescopes such as CARMA or the CSO, or space-based telescopes such as Spitzer, ISO, SOFIA, and Herschel. Given a set of observations of spectral line intensities, the PDR Toolbox will compute best-fit FUV incident intensity and cloud density based on our published models of PDR emission.

The PDR Toolbox is available at **http: //dustem.astro.umd.edu/pdrt/**

8th International Conference on High Energy Density Laboratory Astrophysics
March 15-18, 2010
California Institute of Technology
Pasadena, California, USA
http://hedla2010.caltech.edu/