

# 30 Years of Photodissociation Regions:

A symposium to honor David Hollenbach's lifetime in science  
Asilomar, CA, USA - June 28<sup>th</sup> to July 3<sup>rd</sup>, 2015

## INVITED TALK

### Tracing and characterizing PDRs in nearby galaxies

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I will review the emission characteristics of photodissociation region tracers on a galactic scale within the context of the main gas heating and cooling mechanisms at work. The morphology and topology of the interstellar medium have been successfully probed by observations of nearby galaxies (within a few dozens of Mpc), in particular with *Spitzer*, *SOFIA*, *Herschel*, and ground-based sub-millimeter/radio facilities. Nearby galaxies have proven to be invaluable laboratories to understand the physical conditions in which infrared cooling lines emit, with strong implications for studies of unresolved objects. In that vein I will discuss recent results obtained in several samples spanning a wide range of galaxy types, showing also the influence of the ISM metallicity. I will emphasize results concerning the origin of the ubiquitous [CII] 158 $\mu$ m cooling line, which potentially arises from several important phases of the ISM (warm/cold neutral medium, warm ionized medium, dense molecular cloud surfaces), as well as the identification of the gas heating processes in different environments.

#### REFERENCES