

# 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

## Young Photodissociation Complexes in NGC 6822: Stars and Semi-Resolved PDRs

Lynn Redding Carlson<sup>1,2,3</sup>, Alexander Tielens<sup>3</sup>, Suzanne Madden<sup>4</sup>,  
Vianney Lebouteiller<sup>4</sup>, Benjamin D. Johnson<sup>2</sup>, Maud Galametz<sup>5</sup>,  
Diane Cormier<sup>6</sup>, Mélanie Chevance<sup>4</sup>, Frederic Galliano<sup>4</sup>,  
and Aurélie Rémy-Ruyer<sup>4</sup>

<sup>1</sup> University of Virginia

<sup>2</sup> CfA

<sup>3</sup> Leiden Observatory

<sup>4</sup> CEA-Saclay

<sup>5</sup> ESO-Garching

<sup>6</sup> ZAH-University of Heidelberg

LynnRCarlson@gmail.com

I present an examination of PDR properties driven by resolved stellar populations in three regions of NGC 6822. This Local Group dwarf galaxy has a metallicity less than half Solar and lies 490 kpc away. It is close enough that stellar populations are resolved; we can see that our three PDRs are driven by massive stars and model the radiation field directly from the stellar content. The resultant  $G_o$  estimates are significantly higher than that estimated from far-infrared (FIR) dust maps, leading us to postulate that unresolved clumps composing the PDR occupy only a small percentage of each observed spatial element. Detailed analysis rests on the FIR maps in combination with Herschel/PACS spectral maps in [CII] and [OI] 63, 145  $\mu\text{m}$ . We apply PDR modeling results from (Kaufman et al. 1999, 2006, and Wolfire et al. 1990) but incorporate a clumpiness factor into the fits to refine  $G_o$  and derive clump density and filling factor across each PDR map. We further estimate average clump sizes and the number of clumps in each spatial element of our maps. We compare our results to ionized gas densities derived from mid-IR [SIII] line ratios and traced by [OIII] 88  $\mu\text{m}$  to determine whether our PDR clumps and ionized gas are in approximate equilibrium. Finally, we comment on the implications for unresolved PDRs in more distant galaxies.

## REFERENCES

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