

30 Years of Photodissociation Regions:

A symposium to honor David Hollenbach's lifetime in science
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INVITED TALK

Spitzer and Herschel observations of Galactic PDRs

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Photon dominated regions or photodissociation regions (PDRs) are regions where the FUV radiation dominates the energetic balance and chemistry. The regions close to the O and B stars: HII regions, reflection nebulae, the planetary nebulae formed at the end of the life of low mass stars, the outer layers of molecular clouds, diffuse clouds, the nuclei of starburst galaxies and the inner regions and surface of protoplanetary disks are PDRs. The emission of PDRs dominate the sky in the far-infrared (far-IR) range and it is in PDRs where the interchange of energy between massive stars and the interstellar medium occurs. Consequently, the comprehension of the physical and chemical processes occurring in PDRs are necessary to understand the evolution of molecular clouds, and eventually of the galaxies. Spitzer and Herschel space telescopes provided, for the first time, observations in the near to the far-IR range at high spatial resolution and sensitivity with no blockage by any atmospheric feature. Their unprecedented spectral coverage combined with the high spectral and angular resolution have allowed a detailed study of the physics and chemistry of the dust and gas in these regions. In this talk, we give a review of the main Spitzer and Herschel results on PDRs and their implication in our knowledge of the evolution of the interstellar medium.