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Title:	Molecular ISM and star formation efficiency in the central Kpc
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Abstract

A systematic high resolution study of the molecular gas in circumnuclear starbursts in the inner kpc of spirals is presented. This study is based on a multiwavelength dataset of HST and ground-based optical and NIR images, CO (J=1->0) interferometric observations, and radio continuum maps of a sample of eleven nearby galaxies, including the brightest nearby starbursts comparable to M82 and control non-starbursts. The star formation rate per unit mass of molecular gas is not a simple function of molecular gas content: starbursts and non-starbursts can be equally gas-rich in the circumnuclear region, In many non-starbursts, the regions with no appreciable star formation are in fact gas-rich, with gas surface densities below the Toomre critical density for the onset of gravitational instabilities. Conversely, in the circumnuclear starbursts, the Toomre Q parameter is close to 1 in several cases. Subcritical densities, and large non-circular kinematics may limit the SFE of non-starbursts. Other conclusions from the study are : (a) Half of the sample candidates show evidence for external disturbances/mergers and the two most strongly interacting systems are starbursts. (b) All sample candidates host a large-scale stellar bar. (c) High resolution probes reveal features which control nuclear gas transport such as inner Lindblad resonances, bars, spirals, warps, and dynamical friction. These features can influence the local gas surface density, the dynamical timescales in regions of star formation, and the overall SFE.

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