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Abstract

Using the Owens Valley Radio Observatory (OVRO), we are conducting a multi-transition, high-resolution survey of a broad range of active and quiescent galactic nuclei in order to explore the physical and dynamical conditions of their molecular gas, and to constrain the drivers of their activity levels. The targets have comparable distances, their optical types range from Seyfert to LINER to H II-region, and their star formation rates vary by an order of magnitude. We trace cold, warm, and dense molecular gas in the inner kpc with CO(1--0), C0(2--1), and HCN(1--0) observations to address the following questions: (1) What are the distributions and relative intensities of CO(1--0), CO(2--1), and HCN(1--0) within and amongst AGN, starbursts, and non-starbursts? (2) Is HCN(1--0) a better tracer of intense star formation than CO(1--0), as may be expected from the strong correlation between IR and HCN luminosities claimed by Gao & Solomon (2000)? (3) What is the relationship between gas mass fraction, instability parameters, and nuclear type? (4) What is the relationship betweenIs bars and concentrations of cold and dense gas?

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