

A13c **Luminous Infrared Galaxies with the Submillimeter Array**

伊王野 大介 (東大天文センター)、C. Wilson (McMaster)、G. Petitpas (SAO)、M. Krips (SAO)、A. Peck (ALMA/JAO)、and the SMA ULIRG survey team

Luminous and Ultraluminous infrared galaxies (ULIRGs) contain the most intense regions of star formation in the local universe. Because molecular gas is the fuel for current and future star formation, the physical properties and distribution of the warm, dense molecular gas are key components for understanding the processes and timescales controlling star formation in these merger and merger remnant galaxies. We present new results from a legacy project on the Submillimeter Array which is producing high resolution images of a representative sample of 14 galaxies with $\log L_{FIR} > 11.4$ and $D < 200$ Mpc. The five key science goals of this work is to (1) investigate the distribution, kinematics and the physical condition of gas in ULIRGs, (2) map the distribution of dust traced in 880 micron emission and derive the associated dust masses, (3) compare the CO(3-2) properties with the high-z submillimter galaxies and quasars, (4) chart the evolution of dense gas as a function of merger stage, and (5) investigate the origin of nuclear OH megamasers in ULIRGs.