

Millimeter Interferometer Mosaics of Clusters in Formation

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Stars form typically in clusters, in short time intervals (≤ 1 Myr) and in small (≤ 0.5 pc) regions of turbulent dense gas (e.g., see Lada, Strom, & Myers 1993). Millimeter interferometers can now provide wide-field, high-resolution observations of protoclusters, where objects are typically too proximate and embedded to observe by other means. Following Testi & Sargent (1998), who mosaicked the Serpens NW+SE protocluster at OVRO, we have observed mosaics of other regions with high surface densities of protostellar objects including the NGC 1333 IRAS 4 region in Perseus (at the IRAM PdBI), the ρ Oph A region of Ophiuchus (at BIMA, with P. André), the L1551 IRAS 5 region in Taurus (at BIMA), and the OMC-2 region in Orion (at OVRO). Continuum mosaics at $\lambda = 3.2$ mm were made alongside line mosaics of N_2H^+ (1–0), a dense gas tracer of quiescent material that avoids confusion from outflow motions. These maps will provide data on relative spacings, masses, and velocities that address key issues in cluster formation, and demonstrate a compelling future scientific programme for ALMA.

Lada, E. A., Strom, K., & Myers, P. C. 1993, in “Protostars and Planets III”, ed. E.H. Levy, J. Lunine, & M. S. Matthews, (University of Arizona Press: Tucson), p. 245
Testi, L., & Sargent, A. I. 1998, ApJ, 508, L91

Abstract submitted for Science with the Atacama Large Millimeter Array, 6 – 8 October 1999, Washington, D. C.