ABSTRACT

TROOST, Tobias

Max-Planck-Institut für Radioastronomie, Bonn

Unveiling the next generation of massive stars: First results from ATLASGAL

Unveiling the next generation of massive stars: First results from ATLASGAL (F. Schuller, K. Menten, F. Wyrowski, S. Bontemps, L. Bronfman, T. Henning, P. Schilke, M. Walmsley, A. Zavagno) Submillimeter continuum emission traces high molecular column densities and, thus, dense cloud regions in which new stars are forming. Surveys of the Galactic plane in such emission have the potential of delivering an unbiased view of high-mass star formation throughout the Milky Way.

The Atacama Pathfinder Experiment (APEX) telescope on the Chajnantor plateau in Chile is ideally located for mapping the inner Galaxy. Using the Large APEX Bolometer Camera (LABOCA), we have recently completed the APEX Telescope Large Area Survey of the Galaxy (ATLASGAL). This survey, which covers 360 square degrees at 870 μm with a uniform sensitivity of 50 mJy/beam rms, provides the first unbiased sample of cold dusty clumps in the Galaxy at submillimeter wavelength - targets for molecular line follow-up observations and high resolution studies with ALMA.

The ATLASGAL catalog and the extensive follow-up information, will provide ALMA with several thousand compact sources, including hot cores, high-mass proto-stellar objects, and cold pre-stellar cores. Thus, ATLASGAL is expected to trigger numerous follow-up studies with ALMA, aimed at characterizing the physical conditions and the chemistry of the massive star formation process on the smallest possible scales. First results from this survey and ongoing follow-up programs will be presented, and perspectives for future facilities will be described.