

NAOJ ALMA Scientific Research Grant 2021

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■ Title

Study of activities of nearby galaxies with atoms and molecules

■ Summary

The understanding of nature of galaxies is essential to study the evolution of the universe. In particular, distinction of the origin of heating sources (AGN or starburst) is an important aspect. In this program, we aim to explore and establish useful probes of the heating sources by highly sensitive and high spatial resolution observations of atomic and molecular spectral lines with ALMA. In addition, we study chemical processes in such extreme conditions. For this purpose, we use results from reaction models. The main targets are NGC 1068 with the AGN and the starburst galaxy NGC 253, where huge data have already been obtained. We plan to extend the number of targets for comparison. The relation between the activity of galaxies and the abundances of atom/molecules will be revealed with this program.