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■ Title

Massive spheroidal galaxies and their central super massive black holes under a violent formation phase

■ Summary

Extreme starburst galaxies with star formation rate more than 500 Msun/yr represent the rapid formation phase of the massive spheroidal galaxies and their central super massive black holes (SMBHs). We are constructing a statistical sample of extreme starburst galaxies at  $z < 1$  utilizing a unique sample from AKARI-WISE-SDSS cross-matching and Subaru and Seimei spectroscopic follow-up programs. Thanks to the closeness of the sample galaxies to us, they provide a unique opportunity to explore the physical structure of the formation of massive spheroidal galaxies and their central SMBHs. The proposed research tries to answer the questions; a) what are the driving and maintaining mechanisms behind the extremely large star formation rate?, b) how is the central SMBH fed during the extreme starburst phase?, and c) what are the feedback effects associated with the active galactic nuclei (AGN) activity?, by conducting multiple ALMA observations of the extreme starburst galaxies with multiple lines and spatial scales.