

A10a **AzTEC/ASTE SMG Survey of SEP Field**

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Submillimeter Galaxies (SMGs) are dusty, massively star forming galaxies at the early universe. Their (sub)millimeter fluxes originate mostly from vigorous star formation with star formation rates of $100\text{--}1000 M_{\odot} \text{ yr}^{-1}$. Their star-forming and clustering properties suggest they are progenitors of present massive ellipticals. It is thought that these massive galaxies form at dense regions of dark matter, and therefore observations of SMGs provide us with the information on the formation of large-scale structure. Since SMGs are highly obscured by dust, it is essential to observe at submillimeter wavelengths to reveal cosmic star formation and galaxy formation.

We performed a deep blank field survey of a region near the South Ecliptic Pole (SEP) at 1.1-mm with AzTEC, a 144-element bolometer mounted on ASTE telescope. The SEP field is known to be a low-cirrus region, i.e. a window to the high- z universe, and multi-wavelength observations are under way. We covered $\sim 200 \text{ arcmin}^2$ with a rms noise of $\sim 0.9 \text{ mJy beam}^{-1}$ (central $\sim 120 \text{ arcmin}^2$ with $\sim 0.8 \text{ mJy beam}^{-1}$) after integrating ~ 46 hours. We detected more than 25 (40) sources with $> 3.5 \sigma$ ($> 3.0 \sigma$). Little of these sources are detected at far-IR (50–180 μm) with *AKARI*, suggesting that they are possibly at $z > 1$, considering its detection limit. We report on the properties of these possible high- z star-forming galaxies (number counts, clustering, and other-wavelength data).