

	Year	Status	Frequency	Wavelength	Aperture (m)	Instrument	Detectors	Science Aim
STO-2	2016	Flown	1.4 1.9 4.7 (THz)	64 258 215 (μm)	0.8	Spectrometer	HEBM	Observations of CII, NII, and OI fine structure line in Milky Way giant molecular clouds .
OLIMPO	2018	Flown	150 220 350 480 (GHz)	625 857 1499 1999 (μm)	2.6	Differential spectrometer	KID	Study inverse Compton scattering of CMB photons crossing clusters of galaxies (Sunyaev-Zeldovich effect).
BOBCAT	2019	Flown	-	-	3-4	-	-	Develop new technology for infrared ballooning (lighter dewars, larger telescopes, etc.).
PIPER	2019	Flown	200 270 350 600 (GHz)	500 857 1110 1499 (um)	1	Polarimeter	TES (BUG)	Map CMB polarization at large angular scales.
BLAST-TNG	2020	Flown	1199 856 599 (GHz)	250 350 500 (μm)	2.5	Polarimeter/ B-field mapper	KID	Map polarized dust emission locally (galactic molecular clouds) and in select extragalactic sources.
GUSTO	2022	Pending flight	1897 4758 1462 (GHz)	63 158 205 (μm)	0.9	Three wide-field heterodyne array receivers	-	Map CII, OI, and NII in the Milky Way , the LMC , and select deep regions.
EXCLAIM	2023	Pending flight	420 - 540 (GHz)	555 - 714 (μm)	0.9	Six spectrometer-on-a-chip devices (R~512)	KID	Perform line intensity mapping of CO and CII at intermediate redshifts . Map Galactic CI abundances.
ASTHROS	2023	Pending flight	1.4 - 1.5 2.4 - 2.7 (THz)	200 - 214 111 – 125 (μm)	2.5	Heterodyne array camera	KID	Simultaneously observe the NII fine structure lines in galactic and extragalactic star forming regions.
TIM	2024	Pending flight	0.7 - 1.25 (THz)	240 - 420 (μm)	2	Imaging (grating) spectrometer (R~230)	KID	Perform line intensity mapping of FIR lines (CII, OIII , etc.) from z~0.2 - 3.8 .
JUSTINE	2025	Proposed	9-10 (GHz)	30-90 (mm)	-	Polarizing Fourier Transform Spectrometer (R~100)	-	Observe young stellar objects (YSOs), evolved stars , and a select AGN .
BEGINS	2026	Proposed	4.7 - 12 (THz)	25 - 64 (μm)	0.5	Spectro-photometric imager	KID	Create spectral energy distribution (SED) maps of molecular cloud environments.
BLAST-Observatory	2027	Proposed	856 1199 1713 (GHz)	175 250 350 (μm)	1.8	Polarized 3-band photometer	KID	Map polarized dust emission in nearby molecular clouds , LMC/SMC , and the diffuse ISM .
Dust Buster	2027	Proposed	0.115 – 2.5 (THz)	120 – 2600 (μm)	1.9	Polarizing Fourier Transform Spectrometer	-	Map polarized dust and use spectra to determine dust composition and properties. Improve dust foreground removal.