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Searching for high-z DSFGs with NIKA2 and NOEMA

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As the possible progenitors of passive galaxies at z=2-3, dusty star-forming galaxies(DSFGs) at z>4 provide a unique perspective to study the formation, assembly and early quenching of massive galaxies in the early Universe. The extreme obscuration in optical-IR makes (sub)mm spectral scans the most unambiguous way to confirm/exclude the high-z nature of candidate sources. In this talk, we will present a joint-analysis method to efficiently search for the most possible spectroscopic redshift in spectral scans on high-z DSFGs candidates. In addition to the (non)detections of lines in the spectra, the total IR luminosities estimated by the SED fitting are also used to predict the line fluxes and evaluate if the (non)detections are consistent with the expected line fluxes at given redshifts. We will show its power in identifying the redshift of high-z DSFGs found in NIKA2 science verification data, and discuss the possible implication of this framework to the ongoing IRAM 30m large program: NIKA2 Cosmological Legacy Survey(N2CLS).

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