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Simulating systematics in COMAP

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In this talk we present a physically motivated signal simulation of the most central systematics in the COMAP telescope. While the Season 2 COMAP results provided the strongest constraints on cosmological CO line emission to date, 75% of the data were cut due to systematic errors. Properly understanding, and subsequently mitigating, the systematics are crucial in order to recover the lost data. This is an important step towards obtaining the first COMAP detection. The most significant systematics modeled are a detailed time-varying ground pickup model and a standing wave model. The systematics are simulated at the TOD level, and propagated through the COMAP data analysis pipeline. We present time-domain, map-domain and power spectra analysis of the simulated signal systematics before and after the pipeline filtering.

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