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## Stefano Carniani - CGM enrichment by quasar-driven outflows

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Large scale outflows are believed to be an important mechanism in the evolution of galaxies, as they can both suppress and enhance star formation as well as eject gas from their host galaxies and mix the pristine gas from the intergalactic medium and processed material from the galaxy in the circum-galactic medium (CGM). We can study the impact of these large-scale outflows either by tracing the current outflows (by studying broad emission line profiles), or by studying the impact of past outflows on the gas surrounding the galaxy. In this work, we examined the CO(7-6), CI, H<sub>2</sub>O (806 GHz) and dust continuum ALMA observations of quasars at  $z \sim 2.3$ . By investigating the radial surface brightness profiles of both the individual sources and the stacked emission, we detect extended cold gas and dust emission on scales of  $\sim 14$  kpc in CO(7-6), CI, and dust continuum. We have further confirmed our results by investigating the visibilities of individual targets and the stacked visibilities. These results reveal the impact of large scale outflows on the CGM around extremely powerful quasars.

**Session Classification:** Galaxies and AGNs