An essential element of our understanding of distant galaxies comes from observations of emission from molecular and atomic interstellar gas, particularly cooling through $^{12}$CO, [CII] and [CI]. A majority of the detections of this emission from high-redshift galaxies has been from powerful quasars and it has been very difficult to probe the physical properties of high-redshift starburst galaxies. However, recently, gravitational lensing provided us with such an opportunity.

SMMJ2135-0102 is a star-forming ($\sim 4000\times 10^9 M_\odot \text{yr}^{-1}$) galaxy at $z=2.3259$ which was discovered in 2010 and has since been studied extensively. It is magnified 32x by a foreground galaxy cluster, boosting both the size and flux, thus providing a unique opportunity to probe the conditions and processes occurring within a high-redshift star-forming galaxy.

**The ISM of a $z=2.3$ star-forming galaxy**


Rob Ivison et al. 2010, A&A 517, 35