

**14 December 2020**

Monday 3:30 pm

**Physikalische Institute Köln**

[Video stream / Host: Frank Bigiel](#)

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## The Inner Workings of a Starburst

Starbursts are a rare phenomenon in the present day universe, but they represent perhaps the most common mode under which stars form and galaxies grow during the  $z \sim 1-2$  peak of cosmic star formation activity. This mode of star formation is not a simple scaling of what happens in typical molecular clouds, but represents a much more efficient manner of converting gas into stars likely through the formation of massive clusters. The resulting feedback in the form of galaxy-scale outflows is, together with AGN, thought to be one of the main forms of regulation of galaxy growth. NGC 253 is the premier local example for a nuclear starburst, and has been targeted with several ALMA observations in order to study how these processes work. I will discuss the properties of the galactic molecular outflow, including our best constraints on the mass and outflow rate, and the properties of the molecular gas. I will, however, focus on the results from high-resolution observations which reveal a dozen compact structures with properties corresponding to massive young star clusters and super star clusters (SSCs), most of which are so embedded that are invisible in optical and NIR observations (the exception is a known SSC). Finally, I will present the analysis of our 0.5-pc resolution observations which reveal feedback and disruption on the scales of these clusters, I will discuss the properties of these „cluster-scale“ outflows, and I will compare them to theoretical expectations.

