

# Colloquium

# SFB 956

**Conditions and Impact of Star Formation** 

### 17 December 2019 | supplementary colloquium

Tuesday 2:00 pm **Physikalische Institute Köln** ETP, Seminarraum 003 Zülpicher Straße 77 | 50937 Köln

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# (Sub)millimeter Observations of Hidden Star Formation and the Formation of Dust Through Cosmic Times

Understanding the emergence and evolution of star formation, the interstellar medium (ISM) in galaxies, as traced by dust emission, and how these two quantities relate to the underlying dark matter and larger scale structures is a major goal of astronomy. The primary tracers of star formation and the ISM are observable at FIR through (sub) millimeter wavelengths, yet most analysis of early Universe galaxy evolution has been done using optical/near-infrared studies. However, in the rest-frame UV and at visible wavelengths, most of the star formation is strongly obscured by foreground dust, so few constraints exist on the universal star formation activity, in particular in redshift z>3 galaxies. To bridge this gap in our understanding, large (sub) millimeter surveys will be necessary.

I will illustrate the anticipated scientific capabilities of such surveys by presenting scientific results we have already obtained from observations with the GISMO 2 mm continuum camera at the IRAM 30 m telescope in Spain. These observations include one ultra-deep and one medium deep millimeter survey in the HDF and in the COSMOS field, respectively. As an example of nearby hidden star formation I will present a recent analysis of GISMO observations of the Galactic Center region. I will finish with an outlook on the potential future of millimeter through FIR astronomy in the coming decade(s).

#### No distinguishable difference between these two models with current data



