

# Colloquium

SFB 956

Conditions and Impact of Star Formation

21.11.2016 | supplementary colloquium

Monday 4:00 pm

Physikalische Institute Köln

KOSMA room

Zülpicher Straße 77 | 50937 Köln

**Jorge Abreu-Vicente**

MPIA, Heidelberg, Germany

## Molecular Cloud Structure at Galactic Scales

The molecular clouds are mainly formed by filamentary structures that are the immediate sites of star formation. Molecular cloud structure is intimately linked to the physical processes driving their evolution. While molecular cloud evolution and star-forming activities are well understood in the Solar neighbourhood, systematic studies of these at Galactic scales are still lacking. In this talk I will introduce the first systematic study of molecular cloud structure at scales involving galactic spiral arms. I will show how the molecular cloud structure changes with their evolutionary stages. Recently, a family of several tens-pc long filamentary molecular clouds have been found to populate the Galactic plane, equally distributed in spiral- and inter-arm regions. These are outstanding objects to study star formation at Galactic scales. I present a method to reveal giant molecular filaments and estimate their main physical properties.

Finally, I will present a method that combines the Planck and Herschel data in the Fourier space to absolute calibrate the latter. I show how this method improves our ability to measure reliable column densities and temperatures from Herschel data compared to the classical uniform background correction adopted. With this method, we will be able to obtain more accurate observational assessments of the molecular cloud structure at Galactic scales.

