

Brown Bag Seminar No. 221

2026

2.4 (wed.)

12:10
12:50

12:10-12:15

◆ Introduction

12:15-12:40

◆ Seminar
(Presentation)

12:40-12:50

◆ Q&A

Online
(Zoom)Scan here for
Registration ▶▶https://us02web.zoom.us/webinar/register/WN_Mtg89pTWSxmlTvj1E4rs1A

Supported by Kyushu University, Q-AOS

Cycle of the interstellar medium leading to the formation of stars and planets



Key Words

Astrophysics

Interstellar medium

Star and planet formation

Associate Professor **Doris ARZOUMANIAN**

Institute for Advanced Study, Kyushu University

Doris Arzoumanian is a researcher in astrophysics. She obtained her PhD degree in Astronomy and Astrophysics from the Paris-Diderot University in France. After several research positions in France, Portugal and Japan, she is currently an Associate Professor at the Institute for Advanced Study at Kyushu University and a member of the Department of Earth and Planetary Sciences at the Faculty of Science.

Her main research interest is to study the role of the physical processes (turbulence, gravity, magnetic field) leading to the formation of stars. She also studies the impact of stellar radiation on the surrounding interstellar medium.

For her research, she analyzes multiwavelength observational data obtained with various international telescopes. In parallel, she works with theorists to confront observational results with numerical simulations and theoretical models.

Her research goal is to build a comprehensive picture of star formation by constraining the physical processes and the timescales governing the cycle of the interstellar medium. In addition, she aims at discussing the birth environment of the Sun as part of the improved paradigm of star formation, connecting the studies of the formation of all stars to the origin of our star, the Sun, investigating the formation of habitable planets and the emergence of life on Earth.

Stars are building blocks of galaxies. Low mass stars, like our Sun, may host planets where life could emerge, and the most massive stars govern the evolution of galaxies through chemical enrichment and energy injection. Understanding how stars form and evolve will lead to a better description of the Universe as a whole.

Despite its importance, the basic question of how stars form is not well understood. The evolution of the Universe is a result of continuous cycles of interchange of matter and energy between stars and the interstellar medium (made of gas and dust) that fills the space between stars. This interstellar medium is organized in networks of elongated matter structures, called filaments, where new stars form.

In this presentation, I will summarize recent theoretical and observational works proposing a comprehensive physical scenario for the formation of filaments, stars, and planets.