



PHYSICS COLLOQUIUM

Speaker:

Prof. Sandrine Courtin

Hubert Curien Pluridisciplinary Institute, CNRS
and University of Strasbourg,
France



Topic:

Nucleosynthesis and burning of Carbon in stars, the origin of life

*Time and
place:*

Tuesday, June 13, 2023, **2:50 pm** – hybrid event

The colloquium will be held in REC/C213.

Online participation possible:

Zoom-Meeting: Meeting-ID: 631 3817 8900 / passcode: PK-SoSe23

<https://tu-dresden.zoom.us/j/63138178900?pwd=RVZM3N4azdmNmVJQ2RWUTZ0TkxXdz09>

Host:

Prof. Daniel Bemmerer

Abstract:

Nuclear reactions feed the stars throughout their lives while producing all the chemical elements that surround us, including those that are indispensable for life itself to occur, such as carbon or oxygen. The measurement of these reactions in the laboratory will be presented, in a combination of nuclear physics and astrophysics. Here, fusion reactions will be described as the dominant mechanism in the collisions of heavy-ions at nuclear physics energies. At very low energies, fusion occurs via tunneling through the Coulomb barrier and is strongly sensitive to structure effects of the colliding nuclei, like the formation of nuclear molecules and the associated symmetries. In this low energy regime, nuclear fusion is strongly connected with astrophysics. Indeed, fusion in astrophysical environments often occurs at temperatures which correspond to energies lower than what can be studied in the laboratory, except for a few reactions. Among these reactions, the study of the carbon+carbon fusion probability at thermonuclear energies will be taken as an example, as one of the most challenging nuclear physics reactions to be measured.

Bio:

Prof. Sandrine Courtin is an expert of molecular states in nuclei and fusion reactions of astrophysics interest. She is developing research at the University of Strasbourg and Hubert Curien Pluridisciplinary Institute (IPHC – CNRS France). She is Honorary Prof. of the University of York (UK), PI of the STELLA (Stellar Laboratory) project between France and UK, and former Fellow of the University of Strasbourg Institute of Advanced Studies (France). She is the Director of the IPHC.

Mitglied von:



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Get-Together

The colloquium will be followed by a Get-Together with Prof. Sandrine Courtin in the room **REC/B101** (about 4:00 p.m.). **All students and staff** are invited to talk to the speaker and discuss perspectives on the academic career, work-life balance and the professional life as a professor.