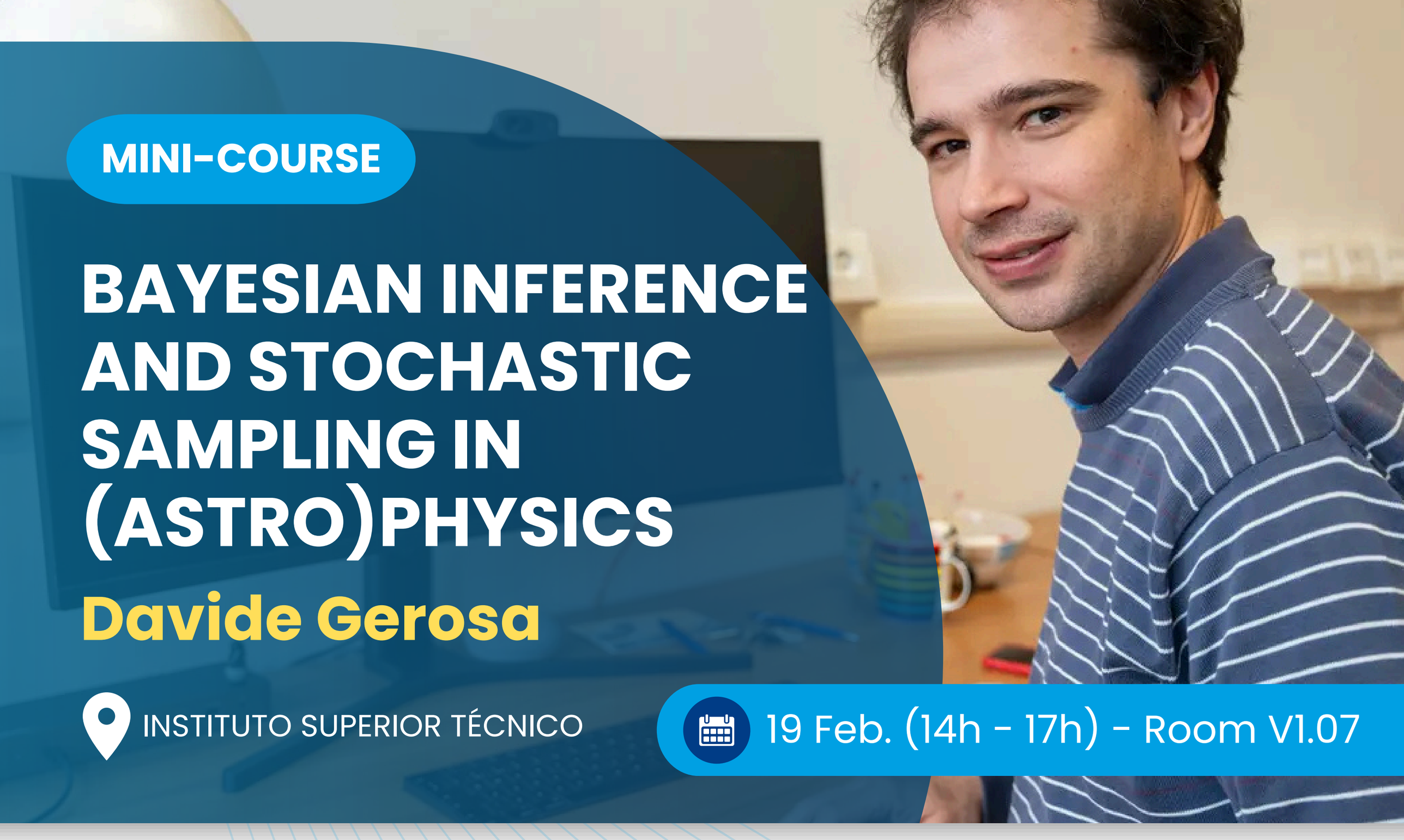

MINI-COURSE

BAYESIAN INFERENCE AND STOCHASTIC SAMPLING IN (ASTRO)PHYSICS

Davide Gerosa

INSTITUTO SUPERIOR TÉCNICO

19 Feb. (14h - 17h) - Room V1.07

DF DEPARTMENT OF PHYSICS TÉCNICO LISBOA

IST - PHYSICS VISITOR PROGRAMME

Course description

Extracting knowledge from data—the numbers we measure in physics—requires rigorous statistical inference. In this mini-course, we introduce the fundamentals of Bayesian reasoning and its role in modern scientific analysis. We will explore key stochastic sampling methods, including Markov Chain Monte Carlo and, time permitting, nested sampling. The session concludes with a hands-on astrophysics example, guiding students through a complete inference workflow in practice.

Requirements:
- Moderate knowledge of the Python programming language
- Undergraduate-level notions of statistics.
- A laptop with a working Python distribution.

Meet our Lecturer

Davide Gerosa completed his PhD at the University of Cambridge (UK) in 2016. He then held a NASA postdoctoral fellowship at the California Institute of Technology (USA) and later a faculty appointment at the University of Birmingham (UK). Since 2021, he has been an associate professor at the University of Milano-Bicocca (Italy), where he leads a vibrant research group in gravitational-wave astronomy supported by the European Research Council. His core research interests include dynamics of black-hole binaries, gravitational-wave data analysis, and related applications of artificial intelligence.

REGISTER NOW!
DEADLINE: 17 FEBRUARY

This course is open to everyone!

Scan to register

A certificate of attendance will be issued to all students completing the course.