



UNIVERSITÀ  
DEGLI STUDI  
FIRENZE

**DICEA**  
DIPARTIMENTO  
DI INGEGNERIA CIVILE  
E AMBIENTALE

## Avviso di Seminario

**Mercoledì 4 febbraio 2026**

**h. 15.00-16.30 – Aula Caminetto (Sede di Santa Marta)**

**The uncertainty principle for chaos**

and

**Differential equations with a generalized  
piecewise constant argument and applications**

**Prof. Marat Akhmet**



**Middle East Technical University, Ankara**

### Abstract

**Part 1:** W. Heisenberg developed the famous uncertainty principle, which has profoundly impacted various fields, including science, industry, and social life. In our work on chaos research, we propose an uncertainty principle specifically for chaos, focusing on two key characteristics: alpha unpredictability and Lorenz sensitivity.

**Part 2:** We will explore the fundamental aspects of differential equations with a generalized piecewise-constant argument. We will compare these aspects with those of smooth ordinary differential equations, discussing a wide range of applications related to industrial and real-world problems.