

PDE@UTAD

Programme and Book of Abstracts

A One-Day Meeting on
Partial Differential Equations

30 NOVEMBER 2026

University of Trás-os-Montes e Alto Douro
Vila Real, Portugal

Welcome

PDE@UTAD is a one-day meeting bringing together researchers and students working in partial differential equations and related areas. The programme combines four invited lectures with five contributed talks, with time for informal discussion and scientific exchange. **Date:** Monday, 30 November

2026

Venue: Room B0.02, Complexo Laboratorial, University of Trás-os-Montes e Alto Douro (UTAD), Vila Real, Portugal. **Scientific themes**

Regularity theory; kinetic theory; applications of PDEs to natural sciences; free boundary problems; optimal control; dispersive equations. **Organising**

committee

Eurica Henriques (CMAT, UTAD)

Edgard A. Pimentel (CMUC, University of Coimbra)

Programme

10:00	Check-in and welcome
10:30	Ana Jacinta Soares
	From the Boltzmann equation to macroscopic PDE
11:20	Marina Ferreira
	Self-similar behaviour in coagulation equations
12:10	Contributed talk 1
12:30	<i>Lunch break</i>
14:00	Makson Santos
	Regularity theory for nonlocal elliptic equations
14:35	Contributed talk 2
15:10	Contributed talk 3
15:30	<i>Coffee break</i>
16:00	Contributed talk 4
16:20	Contributed talk 5
16:40	Simão Correia
	Regularity theory for dispersive equations

Programme as listed on the conference website; subject to updates.

Invited Lectures

INVITED LECTURE

Ana Jacinta Soares

CMAT, University of Minho

[Research profile](#) ↗

From the Boltzmann equation to macroscopic PDE

The Boltzmann equation is a central model in kinetic theory and provides a natural framework for connecting microscopic interactions with macroscopic PDEs. This talk presents an overview of the mathematical ideas underlying the hydrodynamic limit and related multiscale approaches, from the classical equations of fluid dynamics to recent developments in multicomponent, reactive, and biological systems.

INVITED LECTURE

Marina Ferreira

CNRS IMT, University of Toulouse

[Research profile](#) ↗

Self-similar behaviour in coagulation equations

Long-time self-similar behaviour has been rigorously established for coagulation equations with specific coagulation kernels for which explicit solutions are available. Such phenomenon reflects an underlying scaling invariance: roughly speaking, as time tends to infinity, solutions take the form $f(x, t) \sim t^p \phi(x/t^q)$, where ϕ is the self-similar profile.

For more general classes of kernels — including those arising in atmospheric science and other applications — it is widely expected that solutions exhibit the same type of asymptotic behaviour. However, proving convergence to a

self-similar profile remains a major open problem.

In this talk, I will focus on open systems, in which a constant in time source is introduced. I will present recent conjectures and existence results for self-similar profiles in this setting for general coagulation kernels. I will also describe parameter regimes in which anomalous self-similar behaviour is expected, where the scaling may depend on moments of the solution or the limiting profile may become degenerate, concentrating into a Dirac mass.

INVITED LECTURE

Makson Santos

CEMS.UL, University of Lisbon

[Research profile](#) ↗

Regularity theory for nonlocal elliptic equations

In this talk, we investigate the regularity properties of solutions to a class of fully nonlinear nonlocal elliptic equations. In particular, we establish optimal regularity results for viscosity solutions of equations with a right-hand side in L^p , where the regularity space depends on the exponent p .

INVITED LECTURE

Simão Correia

CAMGSD, Instituto Superior Técnico

[Research profile](#) ↗

Regularity theory for dispersive equations

Given a dispersive equation, there is a close relationship between the regularity of the initial data and the qualitative theory associated with the equation. Among other objectives, one seeks to determine the minimal regularity required for the existence of solutions, investigate whether solutions exhibit any gain of regularity, and transfer global well-posedness results from higher-regularity settings to lower-regularity ones. The aim of this talk is to introduce the basic concepts associated with dispersive equations, present some of the main criteria used to derive regularity estimates, and illustrate

the practical consequences of these estimates through representative examples. The presentation will be accessible to anyone with a background in partial differential equations.

Contributed Talks

The programme includes five contributed talks. Speaker names, titles and abstracts will be added as they become available.

Contributed talk 1	12:10
---------------------------	-------

Speaker, title and abstract to be announced.

Contributed talk 2	14:35
---------------------------	-------

Speaker, title and abstract to be announced.

Contributed talk 3	15:10
---------------------------	-------

Speaker, title and abstract to be announced.

Contributed talk 4	16:00
---------------------------	-------

Speaker, title and abstract to be announced.

Contributed talk 5	16:20
---------------------------	-------

Speaker, title and abstract to be announced.

Venue and Practical Information

Location

Room B0.02, Complexo Laboratorial, UTAD, Vila Real, Portugal.

[Open venue map](#) ↗ **Travel**

Vila Real can be reached by car or by bus, including services operated by Rede Expressos and FlixBus. **Refreshments**

Coffee will be offered at the event building. Lunch will take place at Panorâmico. **Contact**

pdeutad@utad.pt

Support

This one-day meeting is funded by national funds through FCT — Fundação para a Ciência e a Tecnologia, I.P., under the FCT Multi-Annual Financing Programme and the research centres CMAT (UID/00013/2025) and CMUC (UID/00324/2025), with the support of UTAD.

