



UNIVERSITÀ DI PARMA

DIPARTIMENTO DI SCIENZE MATEMATICHE, FISICHE E INFORMATICHE

<http://smfi.unipr.it>

Seminari di Fisica Matematica

Prof. **Elisabetta Brocchieri** (University of Graz)

Giovedì 7 maggio 2026 ore 15:30

Aula B, Plesso di Matematica

A structural analysis of cross-diffusion systems: fast reaction limit and pattern formation

Abstract: Cross-diffusion systems play a central role in mathematical modelling, in which density-dependent dispersal and multiscale mechanisms can lead to spatial segregation and diffusion-driven instabilities. In several relevant examples, including generalised SKT-type competition models, cross-diffusion terms can be rigorously derived as fast-reaction limits, thereby providing a clear biological interpretation and posing significant analytical challenges. In this talk, we investigate the impact of biologically derived cross-diffusion on Turing instability, by outlining its relation with the rigorous fast reaction limit approach.

Organizzatori: Andrea Bondesan, Maria Groppi



**Funded by
the European Union**
MesoCroMo - Project n. 101110920