2022 INTP School: Syntheses in Theoretical Community Ecology

1 Overview

The 1st INTP Autumn School "Syntheses in Theoretical Community Ecology" (http://intp.science/content/2022-autumn-school) will take place from **October 3 to 8, 2022** in Ariège, in the French Pyrenees. Its target is an interdisciplinary audience of graduate and post-doctoral students with prior experience in community ecology and modelling.

This thematic school aims to guide participants toward a more unified perspective on theory in community ecology. The program will be constructed jointly by the lecturers, revisiting a broad spectrum of topics from niches to networks and invasions, in order to emphasize the many explicit or hidden connections and tensions between leading theoretical approaches.

The goal is for each attendee to take a step back from their accumulated knowledge, and formulate a synthetic and critical viewpoint on the field's current state and open questions.

2 Dates and location

Application deadline: July 15

Selection: August 1

Dates: Monday October 3, 9:00 (arrival from Sunday 2) to Saturday October 8, 12:30

Location: The school will take place at the INTP campus (http://intp.science/escola/directions) in Surba, a small village in the French Pyrenees, accessible by train from Toulouse (international airport).

3 Fees

Total fees: **500 euros** covering tuition, scheduled activities, accommodation and (vegetarian) meals.

Participants lacking academic funding and facing financial difficulties may contact us to discuss the possibility of a scholarship covering these fees.

In any case, participants are responsible for the cost of travel. Additional activities (e.g. touristic visits or sports) may incur extra fees.

4 Audience

The school is mainly intended for graduate students and post-doctoral researchers with prior experience in theoretical community ecology and adjacent fields. Practical knowledge of modelling (e.g. dynamical models, numerical simulations) will be assumed. Students with interdisciplinary backgrounds fitting these criteria are especially welcome.

We welcome applications from any country. We require participants to provide proof of complete and up-to-date COVID-19 vaccination prior to arrival.

5 Application requirements

Applicants should submit the following documents before July 15th to contact@intp.science:

- A current academic CV
- A short cover letter (maximum 1 page) detailing their background in community ecology, interest in the school, and if relevant, motive for asking a scholarship.

6 Program

Sunday: Arrival possible from 4pm.

Monday-Tuesday-Thursday-Friday, Saturday (morning only):

9:00-12:30 Lectures
14:00-17:30 Free time & optional outdoors activities
18:00-19:30 Scientific activities (discussions, journal clubs, practical sessions)

Wednesday: Projects, discussions, invited online seminar by Mathew Leibold (U Florida).

6.1 Lecture plan

Lecturers: Jean-François Arnoldi (CNRS), Matthieu Barbier (CIRAD), Azenor Bideault (U Laval), Nuria Galiana (CSIC, Madrid), Arnaud Sentis (INRAE), Yuval Zelnik (SLU, Uppsala).

1. Introduction: Defragmenting ecology
2. Niches and fixed environmental effects
3. Vertical interactions, feedbacks and environment transformation
4. Horizontal interactions and coexistence
5. Multitrophic systems, pyramids and flows
6. Networks and structures
7. Technical focus: multi-species dynamics, stability and collectivity
8. Stochasticity and high-dimensionality
9. Transients and historical contingency, invasions and radiation
10. Synthetic frameworks

6.2 Optional activities

Every afternoon will include free time for participants to devote to projects, interactions and outdoors activities including mountain hikes, rock climbing and cultural visits. Some outdoors activities may be supervised, others will be self-organized. In every case, participants should inform us of their health and insurance coverage situation where relevant.