

**Tropical diseases of today, European diseases of tomorrow: a systems biology approach to understand, predict and control emergence of infections.**

Chairholder is expected to conduct independent research and to advance the frontiers of knowledge in the field of **emerging infectious diseases** and use the concepts of **systems biology** as a guide to identify interacting partners, the strength of host-pathogen-environment interactions and their temporal dynamics. This will be done not only through their own work, but also by teaching and supervising students and by coordinating their work with other researchers at IHPE (<http://ihpe.univ-perp.fr>).

Among the crucial consequences of current global changes, the increased frequency of emergence or re-emergence of infectious diseases is probably the most worrying (e.g. endemic schistosomiasis in France since 2014). Advanced knowledge of socio-ecosystems is needed to better characterize transmission hotspots and refine programs to control established foci of infectious diseases. However, this remains a major challenge because the evolution and transmission dynamics of pathogens is a complex process that depends on the interaction between pathogens, their hosts or vectors and biotic, abiotic, socio-economic and ecological factors. In the past, research in this area was largely descriptive. Based on recent advances in predictive ecology, the chairholder will be required to integrate multi-scale data into conceptual models and test them through mesocosm experiments, the results of which will feed the model, in collaboration with mathematicians to develop predictive models to be validated by field observations. Such an approach will help identify effective measures, considering social, economic, and ecological factors.

The chair will be given the possibility to teach up to 42 face-to-face hours in the University of Perpignan biology department, in two Master curricula (i) Master "Integrated biology: population molecules and sustainable development" and (ii) "International Master of Functional Biology & Ecology" in which the classes will be given entirely in English. The candidate is invited to eventually create the "Perpignan School of Systems Biology in Parasitology" to complete the existing training offer and offer transdisciplinary training to health professionals including in endemic regions, especially in Africa and Brazil, building on existing links between the IHPE and South America and Western Africa.

Minimum monthly net salary 2800 €. Bench fee and salary for 1 PostDoc and 2 PhD students provided. Documented experience in publication, grant writing and supervision of staff and/or students required. Previous experience in any of these fields appreciated: integrative and systems biology, invasion biology, host-pathogen interactions, model development, and/or emerging infective diseases appreciated. Excellent English communication skills. French language not essential, if necessary, the chairholder will progressively receive training in this skill.

For more information: contact christoph.grunau@univ-perp.fr