

## > “Community Network Approach to Ecological Complexity – A workshop to identify the “right” questions“ 11-12 March 2015

### **Topic of the workshop**

An ecological community is a set of species that coexist in the same habitat. Examples include food webs, plants and their pollinators and gut microbiome. The community network, which describes who interacts with whom in what way, has been recognized as a powerful tool to characterize and compare different ecological communities and to investigate their consequences in population, community and even ecosystem dynamics. There are three major questions in this research area. (Q1) What, if any, is the general pattern in the structure of community networks? (Q2) What mechanisms shape the community network structures that we observe in nature? (Q3) What is the ecological consequence (function, dynamics) of community network structure? Exploration of those individual questions can help, and actually has been helping our understanding of ecological communities. However, it should be noted that those questions are, in reality, not mutually independent – rather, those three questions, and their potential answers, are tightly connected to each other. For example, while a community theory may predict how the network structure influences the dynamics or stability of populations (Q3), one may argue that a real community should be structured in a stabilizing way, since otherwise it might be too fragile to be observed (Qs 1 and 2). Or, an evolutionary process, such as foraging adaptation, partner choice and speciation, can shape the community network structure (Q2), while the network structure itself should alter the selective force to the coexisting species and therefore affect the evolutionary outcomes (Q3). Given the potential interrelations between those “different” lines of community-network-related issues, it would be essential to review how those classical questions are related to each other and to make effort taking a broader view that unifies those separately emerging ecological ideas.

In this workshop, we have several talks by the invited and internal speakers first to share the basic concept and recent important development in the field, to discuss the potential gaps or links that emerge from the different approaches/questions and to try to identify the interesting questions to be asked to provide more comprehensive understanding of community networks.

### **Goals of the workshop**

The goals of this workshop are, firstly, to train the doctoral students in the concept of community ecology and educate them about the network-based approach to fundamental ecological questions. Secondly, the workshop is meant to foster collegial exchange and catalyze collaborations on ecological community networks. Thirdly, the workshop should help students and PIs of the Münster Graduate School of Evolution to initiate a new collaboration with the external researchers. These meetings will result in identification of “right questions” to be asked in ecology and the development of research proposals in preparation for grant applications.

## Confirmed speakers

- **Louis-Felix Bersier (University of Fribourg, Switzerland)**  
Research topics: community ecology, food-web ecology, biodiversity theories  
<http://www.unifr.ch/biology/research/bersier/>
- **Michio Kondoh (Ryukoku University, Kyōto, Japan)**  
Research topics: evolutionary biology, population ecology, community ecology  
[http://www.est.ryukoku.ac.jp/est/kondoh/index\\_E.html](http://www.est.ryukoku.ac.jp/est/kondoh/index_E.html)
- **Carlos Melian (Swiss Federal Institute of Aquatic Science and Technology (Eawag), Kastanienbaum, Switzerland)**  
Research topics: theoretical ecology, eco-evolutionary dynamics, neutral networks  
[http://www.eawag.ch/about/personen/homepages/melianca/index\\_EN/](http://www.eawag.ch/about/personen/homepages/melianca/index_EN/)
- **Arndt Telschow (University of Münster, Germany)**  
Research topics: network dynamics, parasitism and symbiosis, genetic conflict, systems immunology, speciation  
<http://www.uni-muenster.de/Evolution/genevol/index.shtml>
- **Elisa Thébault (Université Pierre et Marie Curie, Paris, France)**  
Research topics: ecological modeling, interactions between community structure and ecosystem functioning  
<http://iees-paris.ufr918.upmc.fr/index.php?page=fiche&id=84>

## Organizers:

- Michio Kondo (Ryukoku University, Kyōto, Japan)  
ETT-Fellow of the Münster Graduate School of Evolution (MGSE)
- Joachim Kurtz (University of Münster, Germany)  
Speaker of the Münster Graduate School of Evolution (MGSE)
- Vanessa Kloke (University of Münster, Germany)  
Coordinator of the Münster Graduate School of Evolution (MGSE)

## Venue:

“Kavaliershäuschen”, Schlossplatz 6, 48149 Münster, Germany

