# A fresh modeling perspective on invasion resistance in multispecies communities

Erida Gjini*[1]

[1]CEMAT, Instituto Superior Tecnico, University of Lisbon – Portugal

**Résumé**

*We propose a replicator equation framework to model multispecies dynamics where a precise notion of invasion resistance of a system emerges and can be studied explicitly. Such replicator equation can be derived from a population structure model where N species grow and interact pairwise in co-colonization via local environmental modifications. Within this replicator framework, mean invasion fitness arises, evolves dynamically, and may undergo critical predictable shifts with global environmental changes. Our findings highlight the key role of this system trait for invader success, and indicate interaction principles among N species that optimize their collective resistance to invasion. We believe this framework (1) offers a powerful avenue to study, test and validate mechanisms of invasion resistance and colonization phenomena in multispecies ecosystems.*
(1) Gjini, E., & Madec, S. (2023). Towards a mathematical understanding of invasion resistance in multispecies communities. Royal Society Open Science, 10(11), 231034

*Intervenant