

## **Nonlocal cross-interaction systems on graphs**

We study the evolution of a system of two species with nonlinear mobility on a graph with nonlocal interactions. We provide a rigorous interpretation of the interaction system as a gradient flow in a Finslerian setting, extending recent results of Esposito et. al. (2021). Weakening the notion of Minkowski norm and nonlocal gradient, in the spirit of Agueh (2011), the geometric interpretations and the analysis are carried over to  $p$ -Wasserstein-like distances. We also explore the dynamical behavior and energetic properties of the mode, complemented by numerical examples.