Contribution ID: **16** Type: **Poster**

Computing graph p-Laplacian eigenpairs by a dynamical method

Graph p-Laplacian eigenpairs, and in particular the two limit cases $p = 1$ and $p = \infty$, reveal important information about the topology of the graph. Indeed, the 1-Laplacian eigenvalues approximate the Cheeger constants of the graph, while the ∞-eigenvalues can be related to distances among nodes, to the diameter of the graph, and more generally to the maximum radius that allows to inscribe a given number of disjoint balls in the graph. We provide a characterization of the p-Laplacian eigenpairs in terms of constrained weighted linear Laplacian eigenpairs that can be computed by gradient flows for a family of energy functions. Morover, we show that this approach is suitable to deal also with the degenerate case $p = \infty$.

Primary authors: DEIDDA, Piero (Department of Mathematics "Tullio Levi-Civita", University of Padova); SEGALA, Nicola (University of Padova); PUTTI, Mario (University of Padova)

Co-authors: BURGER, Martin (Friedrich Alexander University of Erlangen-Nurnberg); TUDISCO, Francesco (GSSI)

Presenter: DEIDDA, Piero (Department of Mathematics "Tullio Levi-Civita", University of Padova)

Session Classification: Poster