Annuncio di seminario
Martedì 20 novembre 2018 ore 16:00 in Sala Riunioni

NONLINEAR PERRON EIGENVECTORS: THEORY AND APPLICATIONS TO NETWORK ANALYSIS

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Tensors with nonnegative entries arise very naturally in numerous network-related applications and, as for the matrix case, one often is interested in their dominant positive eigenvectors and singular vectors. The power method is the algorithm of reference for this computation. However, unlike the matrix case, most of the eigenvector problems for tensors are NP-hard and the convergence of this method cannot be guaranteed in general. In this talk I will discuss new conditions that ensure existence, uniqueness and computability of the nonlinear Perron eigenvector for a large class of positive matrices and tensors. These results are based on a multilinear version of the Birkhoff–Hopf theorem for matrices. Moreover, I will discuss a number of higher-order models for network mining problems where the new conditions can be used to improve standard matrix-based approaches such as the Google's PageRank or the Bonacich centrality index.

Referente: Prof. Dario Fasino