

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Transport on weighted Networks: when correlations are independent of degree JOSE JAVIER RAMASCO, ISI Foundation, BRUNO GONCALVES, Physics Department, Emory University — Most real-world networks are weighted graphs with the weight of the edges reflecting the relative importance of the connections. In this work, we study non degree dependent correlations between edge weights, generalizing thus the correlations beyond the degree dependent case. We find that two measures, the disparity and the range, defined below, are able to discriminate between the different types of correlated networks. We also study the effect of weight correlations on the transport properties of the graphs. We find that positive correlations dramatically improve transport. The classic case of degree dependent weight correlations relates to our graphs with positive weight correlations.

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Date submitted: 20 Nov 2006

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