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Jamming in complex networks with degree correlation ANA PASTORE Y PIONTTI, IFIMAR Universidad Nacional deMar del Plata- CONICET, Funes 3350 (7600) Mar del Plata, Argentina, LIDIA BRAUNSTEIN, IFIMAR Universidad Nacional deMar del Plata- CONICET and Center for polymer studies, Boston University, Boston, MA 02215, USA, PABLO MACRI, IFIMAR Universidad Nacional deMar del Plata- CONICET, Funes 3350 (7600) Mar del Plata, Argentina — We study the effects of the degree-degree correlations on the pressure congestion J for a diffusive transport process on scale free complex networks. Using the gradient network approach we find that the pressure congestion for disassortative (assortative) networks is lower (bigger) than the one for uncorrelated networks which allow us to affirm that disassortative networks enhance transport through them. This result agree with the fact that many real world transportation networks naturally evolve to this kind of correlation. We explain our results showing that for the disassortative case the clusters in the gradient network turn out to be as much elongated as possible, reducing the pressure congestion J and observing the opposite behavior for the assortative case. Finally, we apply our transportation process to real world networks, and the results agree with our findings for model networks.

Ana Pastore y Piontti
IFIMAR Universidad Nacional deMar del Plata- CONICET,
Funes 3350 (7600) Mar del Plata, Argentina

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