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Robustness of networks of networks with degree-degree correlation BYUNGJOON MIN, City College of New York, SANTIAGO CANALS, Instituto de Neurociencias, HERNAN MAKSE, City College of New York — Many real-world complex systems ranging from critical infrastructure and transportation networks to living systems including brain and cellular networks are not formed by an isolated network but by a network of networks. Randomly coupled networks with interdependency between different networks may easily result in abrupt collapse. Here, we seek a possible explanation of stable functioning in natural networks of networks including functional brain networks. Specifically, we analyze the robustness of networks of networks focused on one-to-many interconnections between different networks and degree-degree correlation. Implication of the network robustness on functional brain networks of rats is also discussed.

Byungjoon Min
City College of New York

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