

## **Extracting Connectivity of Networks from Dynamics**

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To understand how a network of neurons carries out its function, an important first step is to know how the individual nodes of the network, which can be individual or groups of neurons, are connected to one another. We are thus motivated to study the problem of how the connectivity of a network can be extracted from the dynamics of the nodes. As a first step, we study networks in which the connection or coupling between nodes is bi-directional. Recently, we have developed a method for unweighted networks of uniform coupling strength between nodes. Our method extracts the connectivity using solely dynamical measurements of the nodes. In this talk, we shall discuss the method and demonstrate its applicability. We shall particularly show that our method can successfully extract the connectivity of a network obeying FitzHugh Nagumo dynamics. We shall also highlight how this method can be extended to extract connectivity of weighted networks.