Synchronization On Hanoi Networks[1] SHANSHAN LI, STEFAN BOETTCHER, Emory University — Synchronization of coupled oscillators has been intensively studied on a variety of structures. It is believed that the dynamics is deeply associated with its structure. To explore this relation, we study the synchronization of coupled oscillators on Hanoi networks. We analyze the evolution of coupled units over time, and characterized the convergence to the global synchronized state. For this state, the results show a close connection to the spectrum of connectivity matrix. Inspired by this connection, we try to show a dynamical pattern that describes the entire synchronization process from the onset to the final state. This may unveil the unique hierarchical structure of these self-similar Hanoi networks. Our goal is to map the dynamics to the spectrum of the connectivity matrix that encodes significant information about the structure of the underlying system. This exploration may have implications on designing networks that synchronizes coupled units efficiently.

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