Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Task-Based Cohesive Evolution of Dynamic Brain Networks ELIZABETH DAVISON, None — Applications of graph theory to neuroscience have resulted in significant progress towards a mechanistic understanding of the brain. Functional network representation of the brain has linked efficient network structure to psychometric intelligence and altered configurations with disease. Dynamic graphs provide us with tools to further study integral properties of the brain; specifically, the mathematical convention of hyperedges has allowed us to study the brain's cross-linked structure. Hyperedges capture the changes in network structure by identifying groups of brain regions with correlation patterns that change cohesively through time. We performed a hyperedge analysis on functional MRI data from 86 subjects and explored the cohesive evolution properties of their functional brain networks as they performed a series of tasks. Our results establish the hypergraph as a useful measure in understanding functional brain dynamics over tasks and reveal characteristic differences in the co-evolution structure of task-specific networks.

Elizabeth Davison
None

Date submitted: 12 Nov 2013 Electronic form version 1.4