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**Emily P. Devine\*** (epdevi21@g.holycross.edu), **David B. Damiano** and **Richard C. Schmidt**. *Understanding Behavioral Synchrony: Differences in Behavioral Synchrony in Adolescents with Autism Spectrum Disorder using Functional EEG Networks.*

People engaged in social interactions exhibit natural, unintentional coordination of their body movements. Although intense efforts have been made to localize behaviors in human brain activity, little is known about the functional networks that underlie human social interaction. We are interested in how behavioral synchronization corresponds to functional networks in the brain. To this end, we analyzed electroencephalograph activity recorded at 64 electrode locations on the scalp from an experiment in which participant pairs swing pendulums in different interpersonal coordination conditions (in-phase, anti-phase, unintentional, and intentional). Data is collected for both adolescent participants with Autism Spectrum Disorder (ASD) and Typically Developing (TD) adolescents. Using the weighted phase lag index as a pairwise electrode coordination measure, we compare functional networks in selected frequency bands. We apply network analysis techniques to evaluate and compare the dynamic expression of subgraphs in adolescents with ASD and TD adolescents, as social disconnection is one of the suggested tendencies of individuals with ASD. Finally, our analysis lends support to the hypothesized dysfunction of the mirror neuron system with regard to ASD. (Received September 16, 2019)