Contribution ID: **1002** Type: **not specified**

THE NEURAL BASES OF PREDICTIVE STYLES ALONG THE AUTISM-SCHIZOPHRENIA CONTINUUM

Thursday, September 11, 2025 9:00 AM (18 minutes)

This thesis delineates the core rhythmic dynamics by which neural oscillations orchestrate Bayesian inference and drive perceptual decision-making. Across six rigorously designed, multi-method experiments combining behavioral analysis, psychometric assessment, and EEG measures with state-of-the-art computational modeling, this research identifies specific oscillatory signatures of human predictive ability and demonstrates how these rhythms are differentially altered along the autism–schizophrenia continuum.
The primary contribution is the development of a novel, unified bio-behavioral model that positions Autism Spectrum Disorder (ASD) and Schizophrenia Spectrum Disorder (SSD) at opposing poles of a single continuum of predictive dysfunction: ASD is characterized by hyperactive bottom-up signaling, whereas SSD is typified by exaggerated top-down modulation. This novel framework refines and broadens current models of predictive dysfunction across both ASD and SSD.
The work is organized around three principal objectives:
1. Brain connectivity: Mapping neural communication profiles to characterize the circuits underlying perceptual inference and to assess disruptions in brain-network pathways associated with autistic and schizotypal traits.
2. Mapping predictive-coding decision strategies: Characterizing the behavioral and electrophysiological mechanisms by which prior knowledge and beliefs shape perceptual choices, thereby integrating theoretical predictions with neurophysiological evidence.
3. Individual differences: Examining how dispositional variations in ASD and SSD traits shape predictive strategies in both tightly controlled tasks and ecologically valid settings.
By combining theoretical constructs with empirical data, this thesis enhances methodological rigor in perceptual-inference research. It also identifies oscillatory markers of predictive dysfunction within a unified bio-behavioral framework, clarifying how neural rhythms influence cognitive function along a continuum from neurotypical individuals to those with elevated autistic or schizotypal traits. These findings provide a clear foundation for refining experimental designs and exploring neuromodulatory or behavioral interventions, contributing to ongoing efforts toward personalized diagnostic and therapeutic approaches.

If you're submitting a symposium talk, what's the symposium title?

If you're submitting a symposium, or a talk that is part of a symposium, is this a junior symposium?

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Session Classification: PhD prize