

# Stanford Psychedelic Science Group

presents:



## *The Acute and Enduring Effects of Hallucinogenic Drugs on Brain Function and Cognition*

Manoj Doss, PhD

Thursday, September 9  
5:30pm PDT

★ [Zoom Registration Link](#) ★

### **Bio:**

Manoj is broadly interested in the acute and enduring effects of psychoactive drugs on cognition, emotion, and brain function. Manoj completed his PhD at the University of Chicago advised by David Gallo and Harriet de Wit researching mechanisms of episodic memory distortion and the effects of psychoactive drugs including MDMA, THC, and alcohol on emotional episodic memory. In his postdoc working with Frederick Barrett and Roland Griffiths, his research is focused on psychedelic drugs and other hallucinogens. To answer his research questions, he uses novel behavioral paradigms, computational modeling, and neuroimaging.

### **Abstract:**

Psychedelics have been found to acutely attenuate "resting state" functional connectivity within brain networks, particularly the default mode network (DMN), increase connectivity between networks, and increase some measures of neural flexibility such as "entropy." However, with small samples, short scan times, numerous reports based on the same datasets, and underreporting of comparable effects that may not fit a particular narrative, it is unclear how reliable such effects are or whether they are even unique to psychedelics. In this talk, I begin by presenting data from the first functional magnetic resonance imaging (fMRI) study exploring the neural effects of the atypical dissociative hallucinogen salvinorin A and show strikingly similar effects on task-free brain function, including prominent modulation of the default mode network, as classic psychedelics and dissociative anesthetics. I then address claims that psychedelics can acutely enhance cognition despite most research showing domain-general impairments. Nevertheless, using two different computational models across several datasets involving psychoactive drug manipulations of episodic memory, I provide some of the first evidence that full doses of psychedelics may uniquely spare or even enhance certain cognitive processes, in this case mnemonic familiarity. I end with how psychedelics impact brain function and cognition after the "trip" is over. I present a recent study in which both cognitive flexibility and neural flexibility (dynamics of functional connectivity via fMRI) were enhanced one week after psilocybin therapy in patients with major depressive disorder. Together, these findings implicate a role for psychedelics in the treatment of certain psychiatric conditions but paint a more nuanced picture of their supposed benefits and uniqueness.