The Holography of Electric/Magnetic Duality Breaking

At large N, an important sector of the ABJM field theory defined on a stack of N M2-branes can be described holographically by the D=4 N=8 SO(8)-gauged supergravity of de Wit and Nicolai. Since its inception, the latter has been tacitly assumed to be unique. Recently, however, a one-parameter family of SO(8) gaugings of N=8 supergravity has been discovered, the de Wit-Nicolai theory being just a member in this class. Dr. Varela will explain how this overlooked family of SO(8)-gauged supergravities is deeply related to electric/magnetic duality breaking in four dimensions. He will then discuss some predictions that can be made about the family of dual large-N field theories that these supergravities define, focusing on the structure of superconformal phases and the RG flows between them.