

**Clay Research Conference  
September 28, 2016**

**Abstracts of Talks**

**David Ben-Zvi** (University of Texas, Austin)

Title: Representation Theory as Gauge Theory

Abstract: Gauge theories are quantum field theories built directly out of local Lie group symmetry. Conversely, one can view many aspects of representation theory and harmonic analysis of Lie groups through the lens of gauge theory. We will explore the relation between centers and spectral decomposition in representation theory, on the one hand, and local operators and moduli spaces of vacua in gauge theory on the other (without assuming familiarity with either). Contemporary aspects of this relation featuring in the associated workshop include the interplay of geometric representation theory (in particular the geometric Langlands correspondence) with Seiberg-Witten geometry of supersymmetric gauge theories.

**János Kollár** (Princeton University)

Title: Celestial surfaces and quadratic forms

We start with a classical problem of Kummer and Darboux about describing surfaces that contain many circles and explain an answer that uses polynomial solutions of quadratic forms over arbitrary fields.