

---

**SERGEI GUKOV**, California Institute of Technology

*Equivariant invariants of the Hitchin moduli space*

This talk will be a fairly broad review of exploring geometry and topology of the moduli space of Higgs bundles through the equivariant circle action (which acts by a phase on the Higgs field). This approach leads to new invariants of the moduli space of Higgs bundles, the so-called equivariant Verlinde formula, the real and wild versions of the Hitchin character, and the equivariant elliptic genus. The real reason, though, for studying these new invariants is not so much that they contain wealth of useful information about Higgs bundles (they actually do!) but that they have surprising new connections to other problems in math and mathematical physics.