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Twisted K-theory and extended Verlinde algebra

In a series of recent papers, Freed, Hopkins and Teleman put forth a deep result which identifies the twisted K-theory of a compact Lie group G with the representation theory of its loop group LG. Under suitable conditions, both objects can be enhanced to the Verlinde algebra, which appears in mathematical physics as the Frobenius algebra of a certain topological quantum field theory, and in algebraic geometry as the algebra encoding information of moduli spaces of G-bundles over Riemann surfaces. The Verlinde algebra for G with nice connectedness properties has been well-known. However, explicit descriptions of such for disconnected G are lacking. In this talk, I will discuss the various aspects of the Freed-Hopkins-Teleman Theorem and partial results on an extension of the Verlinde algebra of a simply-connected compact Lie group arising from a disconnected Lie group. The talk is based on work in progress joint with David Baraglia and Varghese Mathai.