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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 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.