

2015 Distinguished Lecture Series UCLA Department of Mathematics

Quantum Groups and Quantum K-Theory



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Enumerative geometry of curves in an algebraic variety X is traditionally phrased as computations in cohomology of suitable moduli spaces of curves in X . From many perspectives, including application in mathematical physics, it is interesting and important to promote these computations to K-theory, that is, to compute what may be called indices of Dirac operators on these (very singular) moduli spaces, as a virtual representation of the group $\text{Aut}(X)$. These have truly remarkable properties, including surprising relations for different X that swap the weights of Automorphisms for degrees of the curve. In my lectures, I will try to explain this and give a sense of the kind of geometric representation theory that lets one get a handle on such phenomena.

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3:00 - 3:50 pm
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