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	Autore	Gukov Sergei
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	Altri autori (Persone)	KoroteevPeter NawataSatoshi PeiDu SaberiIngmar
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	Sommario/riassunto	In recent years, there has been an increased interest in exploring the connections between various disciplines of mathematics and theoretical physics such as representation theory, algebraic geometry, quantum field theory, and string theory. One of the challenges of modern mathematical physics is to understand rigorously the idea of quantization. The program of quantization by branes, which comes from string theory, is explored in the book. This open access book provides a detailed description of the geometric approach to the representation theory of the double affine Hecke algebra (DAHA) of rank one. Spherical DAHA is known to arise from the deformation quantization of the moduli space of SL(2,C) flat connections on the punctured torus. The authors demonstrate the study of the topological

A-model on this moduli space and establish a correspondence between Lagrangian branes of the A-model and DAHA modules. The finite-dimensional DAHA representations are shown to be in one-to-one correspondence with the compact Lagrangian branes. Along the way, the authors discover new finite-dimensional indecomposable representations. They proceed to embed the A-model story in an M-theory brane construction, closely related to the one used in the 3d/3d correspondence; as a result, modular tensor categories behind particular finite-dimensional representations with PSL(2,Z) action are identified. The relationship of Coulomb branch geometry and algebras of line operators in 4d $N = 2^*$ theories to the double affine Hecke algebra is studied further by using a further connection to the fivebrane system for the class S construction. The book is targeted at experts in mathematical physics, representation theory, algebraic geometry, and string theory. This is an open access book.