1. Record Nr. UNINA9910513578303321

Autore	Toda Yukinobu
Titolo	Recent Progress on the Donaldson–Thomas Theory : Wall-Crossing and Refined Invariants / / by Yukinobu Toda
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2021
ISBN	981-16-7838-3
Edizione	[1st ed. 2021.]
Descrizione fisica	1 online resource (110 pages)
Collana	SpringerBriefs in Mathematical Physics, , 2197-1765 ; ; 43
Disciplina	512.55
Soggetti	Mathematical physics Geometry, Algebraic Algebra, Homological Mathematical Physics Algebraic Geometry Category Theory, Homological Algebra Invariants Llibres electrònics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	1Donaldson–Thomas invariants on Calabi–Yau 3-folds -- 2Generalized Donaldson–Thomas invariants -- 3Donaldson–Thomas invariants for quivers with super-potentials -- 4Donaldson–Thomas invariants for Bridgeland semistable objects -- 5Wall-crossing formulas of Donaldson–Thomas invariants -- 6Cohomological Donaldson–Thomas invariants -- 7Gopakumar–Vafa invariants -- 8Some future directions.
Sommario/riassunto	This book is an exposition of recent progress on the Donaldson–Thomas (DT) theory. The DT invariant was introduced by R. Thomas in 1998 as a virtual counting of stable coherent sheaves on Calabi–Yau 3-folds. Later, it turned out that the DT invariants have many interesting properties and appear in several contexts such as the Gromov–Witten/Donaldson–Thomas conjecture on curve-counting theories, wall-crossing in derived categories with respect to Bridgeland stability conditions, BPS state counting in string theory, and others. Recently, a deeper structure of the moduli spaces of coherent sheaves on Calabi–Yau 3-folds was found through derived algebraic geometry. These

moduli spaces admit shifted symplectic structures and the associated d-critical structures, which lead to refined versions of DT invariants such as cohomological DT invariants. The idea of cohomological DT invariants led to a mathematical definition of the Gopakumar–Vafa invariant, which was first proposed by Gopakumar–Vafa in 1998, but its precise mathematical definition has not been available until recently. This book surveys the recent progress on DT invariants and related topics, with a focus on applications to curve-counting theories.