

## Contents

Preface	vii
Scientific Program	ix
<b>Part 1</b>	
Spaces of stability conditions T. BRIDGELAND	1
The crepant resolution conjecture J. BRYAN AND T. GRABER	23
Surfaces in background space and the homology of mapping class groups R. L. COHEN AND I. MADSEN	43
Geometric positivity in the cohomology of homogeneous spaces and generalized Schubert calculus I. COSKUN AND R. VAKIL	77
The global geometry of the moduli space of curves G. FARKAS	125
The Strominger-Yau-Zaslow conjecture: From torus fibrations to degenerations M. GROSS	149
Geometry of $\mathcal{A}_g$ and its compactifications S. GRUSHEVSKY	193
The global Torelli theorem: classical, derived, twisted D. HUYBRECHTS	235
On the geometry of Deligne-Mumford stacks A. KRESCH	259
Moduli spaces of sheaves and principal $G$ -bundles A. LANGER	273
Notes on axiomatic Gromov-Witten theory and applications Y.-P. LEE	309
Gromov-Witten theory, Hurwitz numbers, and matrix models A. OKOUNKOV AND R. PANDHARIPANDE	325
Symplectic homology as Hochschild homology P. SEIDEL	415

Higher and derived stacks: a global overview B. TOËN	435
<b>Part 2</b>	
Hodge-theoretic aspects of the decomposition theorem M. A. A. DE CATALDO AND L. MIGLIORINI	489
Jet schemes and singularities L. EIN AND M. MUSTAŢĂ	505
Multiple polylogarithms, polygons, trees and algebraic cycles H. GANGL, A. B. GONCHAROV, AND A. LEVIN	547
Geometry and topology of symplectic resolutions D. KALEDIN	595
Actions of $\mathbb{C}^*$ and $\mathbb{C}_+$ on affine algebraic varieties S. KALIMAN	629
Derived categories and birational geometry Y. KAWAMATA	655
$p$ -adic Cohomology K. S. KEDLAYA	667
Subvarieties of moduli stacks of canonically polarized varieties: generalizations of Shafarevich's conjecture S. KOVÁCS	685
Young person's guide to moduli of higher dimensional varieties S. KOVÁCS	711
Seattle lectures on motivic integration F. LOESER	745
Differential graded Lie algebras and formal deformation theory M. MANETTI	785
On Faltings' method of almost étale extensions M. C. OLSSON	811
Weak approximation for hypersurfaces of low degree B. HASSETT AND Y. TSCHINKEL	937
Simple constructive weak factorization J. WŁODARCZYK	957