

Table of Contents

| | |
|--|-----|
| Preface | vii |
| Morningside Lectures | |
| Number theory, ancient and modern JOHN COATES | 3 |
| Partition functions and box-spline CLAUDIO PROCESI | 13 |
| Cohomology algebras in symplectic, Kähler and algebraic geometry CLAIRE VOISIN | 31 |
| Plenary Lectures | |
| Calculus of operator functions RAJENDRA BHATIA | 49 |
| Torelli for some moduli spaces INDRANIL BISWAS | 59 |
| The adaptive PML method for acoustic wave scattering problems ZHIMING CHEN AND XINMING WU | 81 |
| Toric Sasaki-Einstein geometry AKITO FUTAKI | 107 |
| Arithmetic groups, mapping class groups, related groups, and their associated spaces LIZHEN JI | 127 |
| On some topics in automorphic representations DIHUA JIANG | 177 |
| Rigidity of polyhedral surfaces FENG LUO | 201 |

| | |
|---|-----|
| An affine sphere equation associated to Einstein toric surfaces TOSHIKI MABUCHI | 219 |
| Number-theoretic techniques in the theory of Lie groups and differential geometry GOPAL PRASAD AND ANDREI S. RAPINCHUK | 231 |
| Local-global principles R. SUJATHA | 251 |
| The flabby class group of a finite cyclic group RICHARD G. SWAN | 259 |
| Green's formula in Hall algebras and cluster algebras JIE XIAO AND FAN XU | 271 |
| The Ricci flow and geometrization of three-manifolds XI-PING ZHU | 305 |
| Three Lectures by Chinese Women Mathematicians | |
| Four proofs for the Cheeger inequality and graph partition algorithms FAN CHUNG | 331 |
| Zeta functions in combinatorics and number theory WEN-CHING WINNIE LI | 351 |
| Soliton hierarchies constructed from involutions CHUU-LIAN TERNG | 367 |