

Contents

| | |
|--|-----|
| Preface | ix |
| Introduction | xi |
| Perverse sheaves and the topology of algebraic varieties Mark Andrea de Cataldo | 1 |
| An introduction to affine Grassmannians and the geometric Satake equivalence Xinwen Zhu | 59 |
| Lectures on Springer theories and orbital integrals Zhiwei Yun | 155 |
| Perverse sheaves and fundamental lemmas Ngô Bảo Châu | 217 |
| Lectures on K-theoretic computations in enumerative geometry Andrei Okounkov | 251 |
| Lectures on perverse sheaves on instanton moduli spaces Hiraku Nakajima | 381 |