Contents

Chapter 1. Introduction 1
1.1. Background 1
1.2. Construction 2
1.3. Comparisons 3
1.4. Future work 3
1.5. Structure of the paper 4
1.6. Conventions and notations 4

Chapter 2. Overview of the construction 5
2.1. Input data 5
2.2. Landau–Ginzburg quasimaps 6
2.3. Stability conditions and moduli of stable LG maps 7
2.4. Hybrid models 8
2.5. The plan 10

Chapter 3. Factorizations 13
3.1. Derived categories of Landau–Ginzburg models 13
3.2. Derived functors 15
3.3. Koszul factorizations 19
3.4. Hochschild Homology 20
3.5. Comparisons 22

Chapter 4. Admissible resolutions of GLSMs 29
4.1. Setup 29
4.2. Admissible resolutions 33
4.3. Definition of the Polishchuk–Vaintrob factorization 37
4.4. On Condition 1 38
4.5. On Conditions 2 and 3 39
4.6. Support of the PV factorization 43
4.7. R-charge equivariance 50

Chapter 5. Construction of a projective embedding 53
5.1. Convexity 53
5.2. Quasi-projective embeddings 54
5.3. Properties of moduli of LG maps 58

Chapter 6. The GLSM theory for convex hybrid models 63
6.1. The Fundamental Factorization 63
6.2. Independence of choices 66
6.3. Rigidified evaluation and the state space 73
6.4. The restricted state space 74

6.5. GLSM invariants 75

Chapter 7. Comparisons with other constructions 79
7.1. Comparison with Gromov–Witten theory and cosection localization 79
7.2. Comparison with the Polishchuk–Vaintrob construction 86
7.3. Comparison with other affine phases 90

Bibliography 93