The Physical Mathematics of Gauged Linear Sigma Models

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There will be four lectures on the following topics:

1) (Calabi-Yau) GLSMs: physics definition and phases
- field content and symmetries
- phases of GLSMs
- Higgs vs Coulomb branches
- Examples

2) (B-type) D-branes in GLSMs
- B-branes in GLSMs
- D-brane transport and categorical equivalences (physics perspective)

3) GLSM partition functions and what they compute
- (Hemi-)sphere partition function
- B-brane central charges and enumerative invariants

Literature:
There aren't any recent reviews, but many of the newer GLSM-themed papers contain useful summaries. Some good older references are:

- Witten "Phases of N=2 theories in two-dimensions" hep-th/9301042: Witten's original paper on GLSMs

- Hori et el "Mirror symmetry" (available at http://www.claymath.org/library/monographs/cmim01.pdf): The big mirror symmetry book, Chapter 15 is on GLSMs; other chapters may be useful too

- Herbst,Hori,Page "Phases Of N=2 Theories In 1+1 Dimensions With Boundary" arXiv:0803.2045[hep-th]: 265 page-long exhaustive discussion on B-branes in abelian GLSMs, Chapters 4,5,7,10 are the most relevant

- Jockers et al "Two-Sphere Partition Functions and Gromov-Witten Invariants" arXiv:1208.6244[hep-th]: sphere partition function and enumerative invariants

- Hori, Romo "Exact Results In Two-Dimensional (2,2) Supersymmetric Gauge Theories With Boundary" arXiv:1308.2438[hep-th]: hemisphere partition function and D-brane central charge