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Mirror Symmetry for Lattice Polarized del Pezzo Surfaces

We describe a notion of lattice polarization for rational elliptic surfaces and weak del Pezzo surfaces, and describe the complex moduli of the former and the Kähler cone of the latter. We then propose a version of mirror symmetry relating these two objects, which should be thought of as a form of Fano-LG correspondence. Finally, we relate this notion to other forms of mirror symmetry, including Dolgachev-Nikulin-Pinkham mirror symmetry for lattice polarized K3 surfaces and the Gross-Siebert program. This is joint work with Alan Thompson.