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## Mirror Symmetry for singularities

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In 2007, Fan, Jarvis, and Ruan constructed an analogue of the Gromov-Witten (GW) theory of hypersurfaces in weighted projective spaces. The new theory is attached to quasi-homogeneous polynomial singularities and is usually called Fan-Jarvis-Ruan-Witten theory (FJRW). It is part of the general picture of Witten, where GW and FJRW theories arise as two distinct GIT quotients of the same model.

I will first explain this idea under the light of mirror symmetry. Then I will present FJRW theory and the geometric problem it illustrates. In particular, I will highlight a geometric property called concavity. For now, it is a necessary condition for explicit results on GW theory of hypersurfaces. But on the FJRW side, the situation has recently changed and I will describe my method based on Koszul cohomology to overcome this difficulty. As a consequence, I obtain a mirror symmetry theorem without concavity.

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