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*Title:*

**"Gauge Theories, Quantum Cohomology and Quantum Integrable Hydrodynamics"**

*Abstract:*

Our work considers 2d  $N = (2,2)$  quiver theories on the sphere. The essential tool for studying these models is the partition function obtained by supersymmetric localization. It encodes many interesting properties of these models: phase structure, geometric data associated to target spaces corresponding to various phases as well as the effective twisted superpotential of the mirror Landau-Ginzburg model. The latter gives a connection with integrable systems while the former allows to extract equivariant Gromov-Witten invariants of the target space. The main example is a gauge theory with ADHM moduli space as its target. It provides a 6d generalization of Nekrasov partition function which contains information on the equivariant quantum cohomology. Furthermore, we show the relation to integrable systems of hydrodynamical type for this model.