The authors continue their mathematically rigorous study of quantum cohomology, initiated in [“A mathematical theory of quantum cohomology”, J. Differential Geom., to appear]. Their main result is that the quantum cohomology ring is isomorphic to the Floer cohomology ring.

To prove this they generalize the definition of the Floer cohomology ring by allowing Hamiltonians whose periodic orbits form nondegenerate manifolds in the sense of Bott. In particular, one can allow the Hamiltonian to be a constant; then one gets the quantum cohomology ring. The theorem now follows by showing that this generalized Floer cohomology ring is independent of the choice of Hamiltonian.

The authors also introduce a quantum Massey product, and conjecture that it vanishes for compact Kähler manifolds.

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