1039-57-12   **Sergiy Koshkin*** (`koshkin@math.northwestern.edu`), 2033 Sheridan Road, Mathematics Department, Evanston, IL 60208-2730. *Quantum invariants of 3-manifolds as holomorphic functions.* Preliminary report.

The traditional construction of quantum invariants defines them only for a discrete set of values but a remarkable physical conjecture predicts that they are in fact restrictions of holomorphic functions. This conjecture known as Large N duality asserts a correspondence between geometry of graph 3-manifolds and three-dimensional complex varieties. The above holomorphic functions emerge as the generating functions of holomorphic curve counts in the variety.

I will explain a graphic calculus that computes these functions directly from a surgery presentation of a manifold by a link, and discuss the implications for their structure and geometric meaning. (Received January 28, 2008)