

A TQFT FROM QUANTUM TEICHMÜLLER THEORY

Jørgen Ellegaard Andersen, **Rinat M. Kashaev**

Aarhus University, Geneva University

By using quantum Teichmüller theory of [1], a new type of three-dimensional TQFT is constructed with the following distinguishing features: it takes its values in the space of tempered distributions; the fundamental building block of the theory is given by Faddeev's quantum dilogarithm [2]. The semi-classical behavior and the geometrical ingredients suggest that the constructed TQFT gives an exact solution of quantum Chern–Simons theory with gauge group $SL(2, \mathbb{C})$.

Keywords: Quantum theory, Teichmüller space, TQFT.

[1] Lett. Math. Phys. 43 (1998), no. 2, 105–115.

[2] Lett. Math. Phys. 34 (1995), no. 3, 249–254.