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Linhui Shen* (linhui@math.msu.edu). *Quantum geometry of moduli spaces of local systems.*

Let G be a split semi-simple algebraic group over \mathbb{Q} . We introduce a natural cluster structure on moduli spaces of G -local systems over surfaces with marked points. As a consequence, the moduli spaces of G -local systems admit natural Poisson structures, and can be further quantized. We will study the principal series representations of such quantum spaces. It will recover many classical topics, such as the q -deformed Toda systems, quantum groups, as well as the modular functor conjecture for such representations, which should lead to new quantum invariants of threefolds. This talk will mainly be based on joint work with A.B. Goncharov (Yale University). (Received January 16, 2019)