Quantum character theory for infinite-dimensional classical groups

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Two basic problems of the representation theory are classification of irreducibles and decomposition of natural representations (“harmonic analysis”). For big groups, such as the infinite-dimensional unitary/orthogonal/symplectic group, a meaningful theory with these two components can be obtained by studying representations possessing characters. We will discuss a q-version of such theory related to the quantum groups, and constructed with a help of combinatorial gadgets: Gelfand-Tsetin graph and 3d Young diagrams. Representation-theoretic meanings of some of the resulting objects remain very mysterious.

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