

# The Invariant Part of the Center of the Small Quantum Group

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The Hitchin fibration has already found many beautiful applications to representation theory, such as Cherednik algebras and automorphic representations. Using the recent work of Bezrukavnikov-Boixeda Alvarez-Shan-Vasserot relating the invariant part of the center of the small quantum group to the geometry of a specific singular Hitchin fiber, we prove a conjecture of Igor Frenkel describing the dimension of the center. Furthermore, when  $G$  is of type  $A$ , we prove (conditionally on a conjecture of Carlsson-Mellit) that there is a bigraded structure on the center, coinciding with Haiman's diagonal coinvariant ring. This is joint work with Anna Lachowska and Nicolas Hemelsoet.

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