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Y Bazlov* (yuri.bazlov@manchester.ac.uk), Department of Mathematics, University of Manchester, Oxford Road, Manchester, M13 9PL, United Kingdom, and **A Berenstein, E Jones-Healey** and **A McGaw**. *Twisting rational Cherednik algebras and their finite-dimensional representations.*

The multiplication map of an associative algebra A can be altered by means of a 2-cocycle to yield a new algebra A' on the same underlying vector space. A source of such cocycles can be second cohomology of an abelian group G if A is G -graded. Beyond the case where A is a group algebra, not much is known about the link between the representation theories of A and of A' . Indeed, the Weyl algebra can be obtained from an algebra of polynomials by twisting; the two algebras have rather different representations.

In this paper, we address rational Cherednik algebras H and show that by twisting them, one can obtain braided Cherednik algebras \underline{H} of mystic reflection groups, recently constructed by Bazlov and Berenstein. We demonstrate how finite-dimensional representations of H are “twisted” into finite-dimensional representations of \underline{H} . In particular, \underline{H} has finite-dimensional modules, if and only if this is true for H . We look at simple cases in an attempt to explore how twisting affects representations. (Received September 03, 2019)