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(matthew.douglass@unt.edu). *A decomposition of the group algebra of a hyperoctahedral group.*

In the 1980's, Lehrer and Solomon showed that the representation of the n^{th} symmetric group on the singular cohomology of the space of n -tuples of distinct complex numbers is a direct sum of representations induced from linear characters of the centralizers of a complete set of conjugacy class representatives. They conjectured that the same result holds for a general finite Coxeter group. Douglass, Roehrl, and Pfeiffer have shown that the Lehrer-Solomon decomposition in cohomology is connected with a decomposition of the regular representation of the symmetric group arising from Solomon's descent algebra.

The Mantaci-Reutenauer algebra of a hyperoctahedral group is a subalgebra of the group algebra with properties similar to those of descent algebras of symmetric groups. In this talk, I will describe how the Mantaci-Reutenauer algebra of a hyperoctahedral group leads to a decomposition of the regular representation as a direct sum of representations induced from linear characters of the centralizers of a complete set of conjugacy class representatives. This answers the question raised by Bonnafé of whether such a decomposition exists.

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