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Jae-Ho Lee* (jhlee@math.wisc.edu), Dept of Mathematics, University of Wisconsin-Madison, 480 Lincoln Dr., Madison, WI 53706. *Q-polynomial distance-regular graphs and the double affine Hecke algebra of type (C_1^\vee, C_1) .*

Let Γ denote a Q -polynomial distance-regular graph with vertex set X . We assume that Γ has q -Racah type and contains a Delsarte clique C . Fix a vertex $x \in C$. We partition X according to the path-length distance to both x and C . This is an equitable partition. For each cell in this partition, consider the corresponding characteristic vector. These characteristic vectors form a basis for a \mathbb{C} -vector space W .

The universal double affine Hecke algebra of type (C_1^\vee, C_1) is the \mathbb{C} -algebra \hat{H}_q defined by generators $\{t_n^{\pm 1}\}_{n=0}^3$ and relations (i) $t_n t_n^{-1} = t_n^{-1} t_n = 1$; (ii) $t_n + t_n^{-1}$ is central; (iii) $t_0 t_1 t_2 t_3 = q^{-1/2}$. We display an \hat{H}_q -module structure for W . For this module and up to affine transformation,

- $t_0 t_1 + (t_0 t_1)^{-1}$ acts as the adjacency matrix of Γ ;
- $t_3 t_0 + (t_3 t_0)^{-1}$ acts as the dual adjacency matrix of Γ with respect to C ;
- $t_1 t_2 + (t_1 t_2)^{-1}$ acts as the dual adjacency matrix of Γ with respect to x .

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