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NUMERICAL RADII OF WEIGHTED SHIFT MATRICES WITH PALINDROMIC WEIGHTS USING DETERMINANTAL POLYNOMIALS

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Abstract. In this paper, we formulate the determinantal polynomials of weighted shift matrices with palindromic weights

$$(a, br, ar^2, \ldots, br^{2n-3}, ar^{2n-2}, c, ar^{2n-2}, br^{2n-3}, \ldots, ar^2, br, a),$$
$$(a, br, ar^2, \ldots, ar^{2n-2}, br^{2n-1}, c, br^{2n-1}, ar^{2n-2}, \ldots, ar^2, br, a),$$
$$(a, br, ar^2, \ldots, br^{2n-3}, ar^{2n-2}, c, c, ar^{2n-2}, br^{2n-3}, \ldots, ar^2, br, a) \text{ and}$$
$$(a, br, ar^2, \ldots, ar^{2n-2}, br^{2n-1}, c, c, br^{2n-1}, ar^{2n-2}, \ldots, ar^2, br, a).$$

Also, we obtain an explicit expression of the numerical radius for each of the weighted shift matrices using these determinantal polynomials. The purpose of this paper is to generalize the results given in [12] and [4].

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