

Computing Aluthge and Duggal transform of polynomial matrices with complex coefficients

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We develop algorithms for the symbolic computation of the Aluthge and Duggal transform of a polynomial matrix. Thus, PSVD by PQRD algorithm from [Foster et al *An algorithm for calculating the QR and singular value decompositions of polynomial matrices*. IEEE Transactions on Signal Processing, 58(3) : 1263-1274, 2009] is used in order to avoid square-root elements in transformed matrices, which is essential for symbolic computations. Numerical examples are investigated as well to illustrate the benefits of using the introduced algorithms.
