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UNIQUE SOLVABILITY IN BIVARIATE HERMITE INTERPOLATION*

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Dedicated to Víctor Pereyra on the occasion of his 70th birthday

Abstract. We consider the question of unique solvability in the context of bivariate Hermite interpolation. Starting from arbitrary nodes, we prescribe arbitrary conditions of Hermite type, and find an appropriate interpolation space in which the problem has a unique solution. We show that the coefficient matrix of the associated linear system is a nonsingular submatrix of a generalized Kronecker product of nonsingular matrices corresponding to univariate Hermite interpolation problems. We also consider the case of generalized polynomials, such as Cauchy-Vandermonde systems.

Key words. Hermite interpolation, bivariate interpolation, generalized Kronecker product.

AMS subject classifications. 41A05, 41A63, 65D05

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