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ON MATRICES WITH ALL MINORS NEGATIVE*

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Abstract. A matrix is called sign regular of order k if every minor of order i has the same sign for each $i = 1, 2, \ldots, k$. At one extreme of the sign regular matrices lies the well studied and important class of totally positive matrices. The purpose here is to initiate a study of the other extreme of sign regular matrices, namely the totally negative matrices (i.e., all minors negative). Many aspects of this class are considered including: existence, spectral properties, inverses, Schur complements, and factorizations.

Key words. Minors, Sign regular matrices, Totally positive, Totally negative.

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