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THE WEAK HAWKINS-SIMON CONDITION*

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Abstract. A real square matrix satisfies the weak Hawkins-Simon condition if its leading principal minors are positive (the condition was first studied by the French mathematician Maurice Potron). Three characterizations are given. Simple sufficient conditions ensure that the condition holds after a suitable reordering of columns. A full characterization of this set of matrices should take into account the group of transforms which leave it invariant. A simple algorithm able, in some cases, to implement a suitable permutation of columns is also studied. The nonsingular Stiemke matrices satisfy the WHS condition after reorderings of both rows and columns.

Key words. Hawkins-Simon condition, Linear complementarity problem, LU factorization, Potron, Stiemke matrix.

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