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M$^\natural$–CONVEXITY AND ULTRAMODULARITY ON INTEGER LATTICE

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Abstract. Ultramodular functions defined on a subset of a finite dimensional Euclidean space is a class of functions that generalizes the scalar convexity. On the other hand, M$^\natural$-convex functions defined on a subset of integer lattice form a class of integrally convex functions. In this paper, we reveals a relationship between ultramodularity and M$^\natural$-convexity on the integer lattice. We show that each M$^\natural$-convex set (function) is an ultramodular set (function). The converse, however, may not be true.

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