

Minkowski rings

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Abstract

The rings whose additive group structure is that of functions on Euclidean space which are sums and differences of indicator functions of polytopes, and in which multiplication is induced by Minkowski addition of the polytopes, are called "Minkowski rings." In this talk it will be shown that this multiplication is indeed well-defined, various identities that hold in Minkowski rings will be illustrated, and applications to counting problems will be given.

Keywords: Additive group, Minkowski sum, polytopes, ring.