

Real Dimension Groups

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Abstract. Dimension groups (not countable) that are also real ordered vector spaces can be obtained as direct limits (over directed sets) of simplicial real vector spaces (finite dimensional vector spaces with the coordinatewise ordering), but the directed set is not as interesting as one would like, *i.e.*, it is not true that a countable-dimensional real vector space that has interpolation can be represented as such a direct limit over the a countable directed set. It turns out this is the case when the group is additionally simple, and it is shown that the latter have an ordered tensor product decomposition. In the Appendix, we provide a huge class of polynomial rings that, with a pointwise ordering, are shown to satisfy interpolation, extending a result outlined by Fuchs.