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Torsion-free abelian groups and infinite divisibility

In my talk I will survey several recent results in effective algebra that use special presentations of torsion-free abelian groups. In such presentations we first list a basis and then divisibility conditions upon the elements of the basis. Such a representation describes an isomorphism type of a torsion-free abelian group. Presentations via divisibility conditions have been rather useful in the study of degree spectra of torsion-free abelian groups and questions related to index sets and categoricity relative to an oracle.