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Abelian Groups are R-Sequenceable

In his 1974 solution to the map colouring problem for all compact 2-dimensional manifolds except the sphere, Gerhard Ringel was led to the following group-theoretic problem: When can the non-identity elements of a group of order n be cyclically arranged in a sequence g_0, $g_1, g_2, ..., g_{n-1}$ such that the quotients $g_i^{-1} g_{i+1}$, $i = 0, 1, 2, ..., n$ (with subscripts modulo n) are all distinct?

The complete Cayley graph X on a group G is the complete directed graph where the edge (x, y) is labeled by $x^{-1}y$. The edges with a given label z in G form a 1-factor F_z and $\{F_z : z \in G\}$ is a 1-factorization of X. A subgraph H of X is an orthogonal subgraph if it contains exactly one edge of each of the one-factors. In this language Ringel's problem asks: For which groups G does the complete Cayley graph X admit an orthogonal directed cycle? In this joint work with Brian Alspach and Donald L. Kreher, we will discuss R-Sequenceability of even ordered abelian groups.