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Chris Hall, Western University, London, Ontario , Canada, **Julia Knight**, University of Notre Dame, Notre Dame, IN , and **Karen Lange*** (karen.lange@wellesley.edu), Wellesley College, Wellesley, MA. *Complexity of well-ordered subsets in algebraic structures*. Preliminary report.

In [1], Knight, Lange, and Solomon bound the computational complexity of the root-taking process over Puiseux and Hahn series, two kinds of generalized power series. But it is open whether the bounds given are optimal. By looking at the most basic steps in the root-taking process, we became interested in the complexity of problems associated with well-ordered subsets of a fixed ordered abelian group. Here we report on our progress so far.

[1] J. F. Knight, K. Lange, and D.R. Solomon “Roots of polynomials in fields of generalized power series”, To appear in *Proceedings for Aspects of Computation*, World Scientific. (Received September 07, 2020)