1116-03-2048 **Julia F. Knight** and **Karen M. Lange*** (karen.lange@wellesley.edu). *Lengths of developments in $K((G))$.*

In [2], Mourgues and Ressayre showed that any real closed field $R$ can be mapped isomorphically onto a truncation-closed subfield of the Hahn field $K((G))$, where $G$ is the natural value group of $R$ and $K$ is the residue field. If we fix a section of the residue field and a well ordering $\prec$ of $R$, then the procedure of Mourgues and Ressayre yields a canonical value group section, and a unique embedding $d : R \to K((G))$ such that $d(R)$ is truncation closed.

In [1], we conjectured that if $\gamma = \omega$, then all elements of $d(R)$ have length less than $\omega^{\omega^\omega}$. We can now prove the conjecture. We also generalize the conjecture to well orderings $\gamma$ of arbitrary countable type, provided that the value group $G$ is *Archimedean*. Here we provide an overview of the background, results, and proofs. Knight will provide more details in a later talk.

[1] J. F. Knight and K. Lange, "Complexity of structures associated with real closed fields", *Proc. of London Math. Society*, 107(2013), 177-197.

[2] M. H. Mourgues and J. P. Ressayre, "Every real closed field has an integer part", *J. Symb. Logic*, 58(1993), 641-647. (Received September 21, 2015)