1135-20-1382 **Emily J Evans*** (ejevans@mathematics.byu.edu), 275 TMCB, Provo, UT 84602, and **Wayne Barrett** and **Amanda E Francis**. *Resistance Distance in Linear 2-Trees.*

We consider the problem of determining the maximal resistance distance, also called effective resistance, on the family of linear 2-trees. In particular we explicitly determine the maximal resistance distance on a graph G_n with vertex set $V(G) = \{1, 2, \ldots, n\}$ and $\{i, j\} \in E(G_n)$ if and only if $0 < |i - j| \leq 2$. We obtain an explicit formula for the resistance distance $r_n(j, k)$ between any two vertices j and k of G_n. To our knowledge $\{G_n\}_{n=3}^{\infty}$ is the first nontrivial family with diameter going to ∞ for which all resistance distances have been explicitly calculated. Moreover, we show that $r_{n+1}(1, n + 1) - r_n(1, n) \to \frac{1}{5}$ as $n \to \infty$, establishing that $r_n(1, n) \to \infty$ as $n \to \infty$. We also obtain similar results for linear 2-trees with different vertex-edge structures but also have the diameter going to ∞. This gives preliminary evidence that resistance distance may yet be a viable method for link prediction, machine learning, etc. for certain subclasses of geometric graphs. (Received September 21, 2017)