1145-05-1202 **Danielle Wang*** (diwang@mit.edu). *On roots of Wiener polynomials of trees.*

The *Wiener polynomial* of a connected graph G is the polynomial $W(G;x) = \sum_{i=1}^{D(G)} d_i(G)x^i$ where $D(G)$ is the diameter of G, and $d_i(G)$ is the number of pairs of vertices at distance i from each other. We examine the roots of Wiener polynomials of trees. We prove that the collection of real Wiener roots of trees is dense in $(-\infty, 0]$, and the collection of complex Wiener roots of trees is dense in $\mathbb{C}$. We also prove that the maximum modulus among all Wiener roots of trees of order $n \geq 31$ is between $2n-15$ and $2n-16$, and we determine the unique tree that achieves the maximum for $n \geq 31$. Finally, we find trees of arbitrarily large diameter whose Wiener roots are all real. (Received September 20, 2018)