1145-39-130 **Kari E. Fowler*** (kfowler@ut.edu), 401 W. Kennedy Blvd., Tampa, FL 33606. *Nevanlinna Theory and Tropical Difference Polynomial Equations.*

There has been increasing interest in tropical mathematics in recent years, and it has grown to include applications in a wide array of disciplines. We study its application to tropical Nevanlinna theory within the context of ultra-discrete analogues of homogeneous complex differential equations. Within the setting of the one-dimensional max-plus tropical semi-ring $\mathbb{R} \cup \{-\infty\}$, we define tropical addition as $a \oplus b = \max\{a, b\}$, tropical multiplication as $a \otimes b = a + b$, and tropical exponentiation as $a^{\otimes b} = b \cdot a$, for $b \in \mathbb{R}$. Specifically, we consider growth properties of tropical meromorphic functions within the context of the interplay between coefficient and solution conditions for tropical difference polynomial equations of the form

$$P(x, f) = \bigoplus_{\lambda \in \Lambda} A_\lambda(x) \otimes \bigotimes_{j=0}^{p} f(x + c_j)^{\otimes \lambda_j} = 0.$$

(Received August 06, 2018)