1145-VL-1755 **Erica R Bajo Calderon***, 100 N University Dr, Edmond, OK 73034. *Minimum Euclidean Function Over* $\mathbb{Z}[\omega]$. Preliminary report.

There are many ways of computing distance. This brings up the question, is there always one way which produces a smallest or minimal distance? In 1949 T. Motzkin discovered a recursive method for determining values of a function which computes the "minimal" Euclidean norm in a given Euclidean domain; however, this recursive method becomes computationally intensive. A closed form for this norm has been found over the integers. Our work is centered on the closed form over the Eisenstein integers, or $\mathbb{Z}[\omega]$ where $\omega = \frac{-1+\sqrt{-3}}{2}$. In this talk, we will discuss how we have analyzed the structure of the residue classes modulo $a + b\omega$, how this has allowed us to reduce the number of necessary computations to find the minimum distance and describe how these results can be applied to determine the closed form over $\mathbb{Z}[\omega]$. (Received September 24, 2018)