1154-11-2247 **Breeanne Baker Swart**, **Kristen Beck**, **Susan Crook**, **Christina Eubanks-Turner**, **Helen G. Grundman*** (grundman@brynmawr.edu), **Laura Hall-Seelig**, **May Mei** and **Laurie Zack**.

Augmented Generalized Happy Functions: Deserts and Oases.

For integers $c \geq 0$ and $b \geq 2$, the augmented generalized happy function, $S_{c,b} : \mathbf{Z}^+ \to \mathbf{Z}^+$, is defined by

$$S_{c,b}\left(\sum_{i=0}^{n} a_i b^i\right) = c + \sum_{i=0}^{n} a_i^2,$$

where $0 \leq a_i \leq b-1$ and $a_n \neq 0$. For a fixed b, a *desert* is a sequence of consecutive values of c for which $S_{c,b}$ has no fixed point. Similarly, an *oasis* is a sequence of consecutive values of c for which $S_{c,b}$ has at least one fixed point.

In this talk, I will discuss properties of the fixed points of these functions and results concerning the possible lengths of deserts and oases. (Received September 17, 2019)