

1107-11-56

**Emilie Hogan\*** ([emilie.hogan@pnnl.gov](mailto:emilie.hogan@pnnl.gov)). *Sufficient conditions for integrality of sequences produced by a certain non-homogeneous non-linear family of recurrences.*

Consider a the three parameter family of non-linear recurrences inspired by the Somos recurrences:

$$x_n x_{n-k} = x_{n-i} x_{n-k+i} + x_{n-j} + x_{n-k+j}$$

where  $i < k - i < k$ ,  $j < k - j < k$ , and initial conditions are  $x_l = 1$  for  $1 \leq l \leq k$ . In 2011 I proved sufficient conditions on  $k, i, j$  for this recurrence to produce a sequence of integers. These conditions are also conjectured to be necessary. In this talk I will discuss techniques for proving integrality of sequences such as these including Fomin and Zelevinsky's Caterpillar Lemma and finding an associated linear recurrence. (Received December 18, 2014)