1077-AC-1670 **Amanda Folsom*** (amanda.folsom@yale.edu), Yale University, Mathematics Department, P.O. Box 208283, New Haven, CT 06520-8283. *Patterns in partitions.*

There are patterns in numbers all around us, but how could something as basic as "1+1=2" have fascinated mathematicians for centuries? In this talk, we will discuss curiosities, both new and old, surrounding "integer partitions," which, given a positive integer n, are the non-increasing sequences of positive integers which sum to n. (For example, $4 = 3 + 1 = 2 + 2 = 2 + 1 + 1 = 1 + 1 + 1 + 1$, so there are 5 partitions of 4.) Despite the fact that partitions are so simple to define, they have led to many fundamental, difficult, surprising, and unsolved problems in mathematics. We will discuss both celebrated past work on partitions due to Euler, Ramanujan, Hardy, Rademacher, Watson, and Atkin to name a few, and also more recent joint work with Kent and Ono, and of Bruinier-Ono. (Received September 20, 2011)