

---

**ANNA PUN**, University of Virginia

*Distribution properties for  $t$ -hooks in partitions*

Partitions, the partition function  $p(n)$ , and the hook lengths of their Ferrers-Young diagrams are important objects in combinatorics, number theory and representation theory. For positive integers  $n$  and  $t$ , we study  $p_t^e(n)$  (resp.  $p_t^o(n)$ ), the number of partitions of  $n$  with an even (resp. odd) number of  $t$ -hooks. Using the Rademacher circle method, we find an exact formula for  $p_t^e(n)$  and  $p_t^o(n)$ .

In this talk, we will discuss how we use this exact formula to show the distribution properties of  $p_t^e(n)$  and  $p_t^o(n)$  which is far from uniform, and the signs of  $p_t^e(n) - p_t^o(n)$  for large  $n$ .