Abstract: Inspired by the recent surge in activity in random matrix theory, and its consequences in understanding distributions in several topics in mathematics, we have tried to better understand several naturally occurring distributions in number theory. We will discuss the following sources for distributions in this talk (in increasing order of depth):

- Points on varieties over F_p

- Sparse points mod n (and the Chinese Remainder Theorem)

- The prime factors of an integer (and cycle lengths in permutations)

The first project is joint with Shparlinski and Zaharescu, the second with Kurlberg.