Symmetric distribution in the last digits of prime numbers

Seung-Woo. Son and Young Jin Kim

Department of Applied Physics, Hanyang University, Ansan 426-791, Korea
(sonswoo@hanyang.ac.kr)

A well-known Benfords law, so-called the first-digit law, describes the frequency distribution of digits in the first place of many real data such as stock prices, populations of city, length of rivers, and physical constants. In the similar manner, we explore the characteristic distribution for the last digit, whether there is a special tendency in the distribution. The distribution pattern is compared to the random process. Even its uniformity is similar to the random process; the tendency decaying to the uniform distribution is somewhat different from the random process. Considering the sequential last digits of the consecutive prime number as a walk, we observe the interesting symmetric distribution in the transition probability matrix, which may be related to the hidden rule of the prime numbers.