

1135-11-1471 **Erik R. Tou*** (etou@uw.edu), University of Washington – Tacoma, Interdisciplinary Arts & Sciences, 1900 Commerce St., Campus Box 358436, Tacoma, WA 98402. *The Prime Number Theorem For Juggling Patterns*.

The mathematics of juggling emerged after the development of siteswap notation in the 1980s. Consequently, much work was done to establish a mathematical theory that describes and enumerates the patterns that a juggler can execute. More recently, mathematicians have provided a broader picture of juggling *sequences* as an infinite set possessing properties similar to the set of positive integers. This theoretical framework moves beyond the physical possibilities of juggling and instead seeks more general mathematical results, such as an enumeration of juggling patterns with a fixed period and arbitrary number of balls. One problem unresolved until now is the enumeration of *primitive* juggling sequences, those fundamental juggling patterns that are analogous to the set of prime numbers. By applying analytic techniques to previously known generating functions, we give asymptotic counting theorems for primitive juggling sequences, much as the prime number theorem gives asymptotic counts for prime rational integers. (Received September 22, 2017)