

# Modular forms, number theory, and partitions

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## Abstract

Let  $p(n)$  denote the number of partitions of  $n$  (for example,  $3 = 2+1 = 1+1+1$ , so we have  $p(3) = 3$ ). This function plays a basic role in such diverse areas of mathematics as Combinatorics, Number Theory, Representation Theory, and Mathematical Physics. Its arithmetic properties have been studied for a century, with many breakthroughs in the last decade. These properties can be viewed as “footprints” of the deeper theory of modular forms, and I will describe some recent results which this theory has produced.