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## Partition identities, functional equations and computer algebra by Jehanne Dousse

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A partition of a positive integer  $n$  is a non-increasing sequence of positive integers whose sum is  $n$ . A partition identity is a theorem stating that for all  $n$ , the number of partitions of  $n$  satisfying some conditions equals the number of partitions of  $n$  satisfying some other conditions. In this talk, we will show how functional equations and computer algebra can be used to prove such identities. In particular we will discuss a semi-automatic method using recurrences and  $q$ -difference equations, and what would be needed to make it fully automatic.