Abstract

Fermat’s Last Theorem states that the equation \( x^n + y^n = z^n \), with \( n \) at least 3, has no solution for positive integers \( x, y \) and \( z \). In this talk I will give an overview of the proof of this result. Using three 'black boxes' of Wiles, Ribet, and Mazur, I will show how the interplay between modular forms and elliptic curves led to the resolution of this 400-year-old problem. I will also discuss how the same strategy (the modular method) can be used to solve other classes of Diophantine equations. The aim of this talk is to provide an introduction to some fundamental concepts in number theory, and I will assume no background knowledge.