Diophantine Equations and Modularity

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Understanding solutions of Diophantine equations over rationals or more generally over any number field is one of the main problems of number theory. One of the most spectacular recent achievement in this area is the proof of Fermat's last theorem by Wiles. By the help of the modular techniques used in this proof and its generalizations it is possible to solve other Diophantine equations too. Understanding quadratic points on the classical modular curve or rational points on its twists play a central role in this approach. In this talk, I will summarize the modular method and mention some recent results about points on modular curves. This is joint work with Samir Siksek.