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DIOPHANTINE COMPUTATIONS

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Abstract

Diophantine problems, in which one seeks integer solutions to a polynomial equation, include some of the oldest problems in mathematics. There is a notable disparity between the difficulty of stating a Diophantine problem and that of solving it. This feature was formalized in the 20th century by the negative answer to Hilbert's tenth problem: It is impossible to determine whether some Diophantine equations have solutions or not. One need not look very far to find examples whose status is unknown. A striking example noted by Mordell in 1953 involves the Diophantine equation $x^3 + y^3 + z^3 = 3$. In this talk I will discuss the resolution of Mordell's question and some related problems. I will also offer some thoughts on how we may approach questions that might be undecidable, and the role that computation can and cannot play.

Date : Tuesday, October 11, 2022

Time: 15:00

Place: TB310 at Mathematics Department, Boğazici University South Campus

We thank TMD and METU Mathematics Department for their support and collaboration.

