ODTU-Bilkent Algebraic Geometry

"Separating periods of quartic surfaces"

By

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Abstract: (This is ongoing work with Pierre Lairez (Inria, France).)
Kontsevich--Zagier periods form a natural number system that extends the algebraic numbers by adding constants coming from geometry and physics. Because there are countably many periods, one would expect it to be possible to compute effectively in this number system. This would require an effective height function and the ability to separate periods of bounded height, neither of which are currently possible.
In this talk, we introduce an effective height function for periods of quartic surfaces defined over algebraic numbers. We also determine the minimal distance between periods of bounded height on a single surface. We use these results to prove heuristic computations of Picard groups that rely on approximations of periods. Moreover, we give explicit Liouville type numbers that can not be the ratio of two periods of a quartic surface.

Date: 16 October 2020, Friday
Time: 15:40
Place: Zoom

To request the event link, please send a message to sertoz@bilkent.edu.tr