Kempner Colloquium

Diophantine and tropical geometry

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Diophantine geometry is the study of integral solutions to a polynomial equation. For instance, for integers $a, b, c \geq 2$ satisfying $1/a + 1/b + 1/c > 1$, Darmon and Granville proved that the individual generalized Fermat equation $x^a + y^b = z^c$ has only finitely many co-prime integer solutions. Conjecturally something stronger is true: for $a, b, c \geq 3$ there are no non-trivial solutions.

I'll discuss various other Diophantine problems, with a focus on the underlying intuition and conjectural framework. I will especially focus on the uniformity conjecture, and will explain new ideas from tropical geometry and our recent partial proof of the uniformity conjecture.

Tuesday March 10, 2015
12:10 PM - 12:50 PM
MATH 350