

Department of Mathematics, BGU

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## Colloquium

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*On Tuesday, June 6, 2017*

*At 14:30 – 15:30*

*In Math -101*

ISHAI DAN-COHEN (BGU)

will talk about

### **A fundamental group approach to the unit equation**

ABSTRACT: Over the course of the last 15 years or so, Minhyong Kim has developed a method for making effective use of the fundamental group to bound sets of solutions to hyperbolic equations; his method opens a new avenue in the quest for an effective version of the Mordell conjecture. But although Kim's approach has led to the construction of explicit bounds in special cases, the problem of realizing the potential effectivity of his methods remains a difficult and beautiful open problem. In the case of the unit equation, this problem may be approached via "motivic" methods. Using these methods we are able to describe an algorithm; its output upon halting is provably the set of integral points, while its halting depends on conjectures. This will be a colloquium-version of a talk that I gave at the algebraic geometry seminar here in November of 2015.