Ben Gurion University – Mathematics
Algebraic Geometry and Number Theory Seminar

Speaker	**Ilan Hirshberg (BGU)**
Title	**The UCT problem in KK-theory: a survey**
Date	Wednesday, 17 May 2017
Time	15:10 – 16:30 (starts 15:10 sharp)
Location	Room -101 in Building 58

Abstract

KK-theory, introduced by Kasparov, is a bifunctor which associates to each pair of separable C^*-algebras A, B an abelian group $KK(A, B)$. This generalizes both K-theory and K-homology. The Rosenberg-Schochet Universal Coefficients Theorem states that for C^*-algebras in a certain so-called bootstrap class, there is an exact sequence

$$0 \to \mathrm{Ext}^1_{\mathbb{Z}}(K_*(A), K_*(B)) \to KK(A, B) \to \mathrm{Hom}(K_*(A), K_*(B)) \to 0$$

It is a major open problem to determine whether this class contains all amenable C^*-algebras.

In this survey, I will try to explain what the terms above mean, and what is the significance of the UCT problem for structure and classification of C^*-algebras. The talk will not be about any of my own results, will not contain any proofs, and will not assume prior knowledge of C^*-algebras or KK-theory.

(updated 8 May 2017)