Department of Mathematics, BGU

Logic, Set Theory and Topology

On *Tuesday, January ,17 2017*

At *12:15 − 13:30*

In *Math 101-*

Assaf Hasson (BGU)

will talk about

A theory of pairs for weakly o-minimal non-valuational structures

Abstract: A linearly ordered structure is weakly o-minimal fi every definable set is a finite boolean combination of convex sets. A weakly o-minimal expansion of an ordered group is non-valuational fi it admits no non-trivial definable convex sub-groups. By a theorem of Baizalov-Poizat fi M is an o-minimal expansion of a group and N is a dense elementary substructure then the structure induced on N by all M-definable sets is weakly o-minimal non-valuational.

It is natural to ask whether all non-valuational structures are obtained in this way. We will give examples showing that this is not the case. We will show, however, that fi M is non-valuational then there exists M^, *an o-minimal structure embedding M densely (as an ordered set) such that M (as a pure set) extended by all M^-definable sets is precisely the structrue M. We will give a complete axiomatisation of the theory of the pair (M^,M), show that it depends only on the theory of M, and that it shares many common features with the theory of dense*

o-minimal pairs. In particular (M^,M) has dense open core (i.e., the reduct consisting only of definable open sets is o-minimal).

Based on joint work with E. Bar-Yehuda and Y. Peterzil.