Department of Mathematics, BGU

Special Seminar

Speaker: *Antoine Ducros* (Paris (6
Title: *Stability of Gauss valuations*
Abstract:

A valued field $(k,|.|)$ is said to be *stable* (this terminology has no link with model-theoretic stability theory) fi every finite extension L of k is defectless, i.e., satisfies the equality $\sum e_vf_v=[L:k]$, where v goes through the set of extensions of $|.|$ to L, and where e_v and f_v are the ramfiication and inertia indexes of v. The purpose of my talk is to present a new proof (which is part of current joint reflexions with E. Hrushovski and F. Loeser) of the following classical fact (Grauert, Kuhlmann, Temkin,...) : let $(k,|.|)$ be a stable valued field, and let $(r_1,\dots,r_n)$ be elements of an ordered abelian group G containing $|k^*|$. Let $'|.|$ be the G-valued valuation on $k(T_1,\dots,T_n)$ that sends $\sum a_I T^I$ to $\max_I |a_I|\cdot r^I$. Then $(k(T_1,\dots,T_n),|.|')$ is stable too.

Our general strategy is purely geometric, but the proof is based upon model-theoretic tools coming from model theory (which I will first present; no knowledge of model theory will be assumed). In particular, it uses in a crucial way a geometric object defined in model-theoretic terms that Hrushovski and Loeser attach to a given k-variety X, which is called its *stable completion*; the only case we will have to consider is that of a curve, in which the stable completion has a very nice model-theoretic property, namely the definability, which makes it very easy to work with.

Time: *Jun ,16 ,11:00—10:00 2015*

Location: *Room ,101- BGU*

Web: */en/research/events/25*