

Department of Mathematics, BGU

Colloquium

On Tuesday, November 21, 2017

At 14:30 – 15:30

In Math -101

ALEX LUBOTZKY (HEBREW UNIVERSITY)

will talk about

First order rigidity of high-rank arithmetic groups

ABSTRACT: The family of high rank arithmetic groups is class of groups which is playing an important role in various areas of mathematics. It includes $SL(n, \mathbb{Z})$, for $n > 2$, $SL(n, \mathbb{Z}[1/p])$ for $n > 1$, their finite index subgroups and many more. A number of remarkable results about them have been proven including; Mostow rigidity, Margulis Super rigidity and the Quasi-isometric rigidity. We will talk about a new type of rigidity : “first order rigidity”. Namely if D is such a non-uniform characteristic zero arithmetic group and E a finitely generated group which is elementary equivalent to it (i.e., the same first order theory in the sense of model theory) then E is isomorphic to D . This stands in contrast with Zlil Sela’s remarkable work which implies that the free groups, surface groups and hyperbolic groups (many of which are low-rank arithmetic groups) have many non isomorphic finitely generated groups which are elementary equivalent to them. Joint work with Nir Avni and Chen Meiri.