Department of Mathematics, BGU

Algebraic Geometry and Number Theory

On *May ,24 2017*

At *15:10 – 16:30*

In *Math 101-*

Itay Glazer (Weizmann)

will talk about

On convolution of algebraic morphisms and some applications

Abstract:

Ben Gurion University – Mathematics

Algebraic Geometry and Number Theory Seminar

Speaker	**Itay Glazer (Weizmann)**
Title	**On convolution of algebraic morphisms and some applications**
Date	Wednesday, 24 May 2017
Time	15:10 – 16:30 (starts 15:10 sharp)
Location	Room -101 in Building 58

Abstract

In analysis, a convolution of two functions usually results in a smoother, better behaved function. Given two morphisms f,g from algebraic varieties X,Y to an algebraic group G, one can define a notion of convolution of these morphisms. Analogously to convolution in analysis, this operation yields a morphism (from X x Y to G) with improved smoothness properties.

In this talk, I will define a convolution operation and present some of its properties. I will then present a recent result; if G=V is a vector space, X smooth and irreducible and f:X--->V a dominant map (over Q), then after finitely many self convolutions of f, we obtain a morphism with the property of being flat with fibers of rational singularities (a property which we call FRS).

Aizenbud and Avni showed that the FRS property has an equivalent analytic characterization, which leads to various applications such as counting points of schemes over finite rings, representation growth, and random walks on (algebraic families of) finite groups. We will discuss some of these applications, and hopefully the main ideas of the proof of the above result.

(updated 11 May 2017)