

Department of Mathematics, BGU

Colloquium

On Tuesday, January, 4 2022

At 14:30 – 15:30

In Math 101-

Dmitry Kerner (BGU)

will talk about

Finite determinacy of maps. Group orbits vs their tangent spaces

Abstract: A function at a non-critical point can be converted to a linear form by a local coordinate change. At an isolated critical point one has the weaker statement: higher order perturbations do not change the group orbit. Namely, the function is determined (up to the local coordinate changes) by its (finite) Taylor polynomial.

This finite-determinacy property was one of the starting points of Singularity Theory. Traditionally such statements are proved by vector field integration. In particular, the group of local coordinate changes becomes a “Lie-type” group.

I will show such determinacy results for maps of germs of (Noetherian) schemes. The essential tool is the “vector field integration” in any characteristic. This equips numerous groups acting on filtered modules with the “Lie-type” structure. (joint work with G. Belitskii, A.F. Boix, G.M. Greuel.)