Department of Mathematics, BGU

# AGNT

**On** *Wednesday, December 15, 2021*

**At** *16:00 – 17:15*

**In** *-101*

Dmitry Kerner (BGU)

will talk about

## Finite determinacy of maps. Group orbits vs the tangent spaces

Abstract: Consider a morphism of germs of Noetherian schemes, f: (X,x)-> (Y,y). When is it 'stable' under perturbations by higher order terms? I.e. when can such a perturbation be undone by a group action, e.g. by the local coordinate changes. This question has been extensively studied for real/complex analytic (or C^k) maps (k^n,o)-> (k^m,o). The idea is to reduce the orbit study, Gf, to the study of the tangent space, T_G f. The classical methods used vector field integration and infinite dimensional Lie groups, thus obstructing extensions to the zero/positive characteristic. During the last years we have developed a purely algebraic approach to this problem, extending the results to arbitrary characteristic. The key tool is the 'Lie-type pair'. This is a group G, its would-be tangent space T_G, and certain maps between G, T_G, approximating the classical exponential/logarithm.

(joint work with G. Belitskii, A.F. Boix, G.M. Greuel.)