

Department of Mathematics, BGU

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# AGNT

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*On Wednesday, July ,10 2024*

*At 14:10 – 15:10*

*In 101-*

Liran Shaul (Charles University Prague)

will talk about

## **Sequences of syzygies, singularity categories and homological conjectures**

Abstract: The stable module category is obtained from the category of modules over a ring by factoring out the projective modules. In this setting, the syzygy of a module becomes a well defined functor, so for instance, the classical Hilbert's syzygy theorem, can be stated as saying this functor is nilpotent. In this talk we present some new properties of the syzygy functor over a commutative noetherian ring. We then explain how to associate to the stable category a stabilization, obtaining the singularity category of a ring (or a scheme). Finally, we explain how relations between the stable category and the singularity category are related to some homological conjectures in noncommutative algebra.