

Department of Mathematics, BGU

AGNT

On Wednesday, May ,20 2026

At 14:10 – 15:10

In 201

Amnon Yekutieli (BGU)

will talk about

The Simplicial Cylinder DG Ring

Abstract: The Keller cylinder DG ring encodes homotopies between DG ring homomorphisms $f_0, f_1 : A \rightarrow B$.

Recently we discovered the higher cylinder DG rings $\text{Cyl}_q(B)$, which assemble into the simplicial cylinder DG ring $\text{Cyl}(B)$. For $q=1$ this recovers Keller's original construction.

The sets $\text{SHom}_q(A,B)$ of DG ring homomorphisms $A \rightarrow \text{Cyl}_q(B)$ form the simplicial Hom set $\text{SHom}(A,B)$. Our main result is that when A is a semi-free DG ring, the simplicial set $\text{SHom}(A,B)$ is a Kan complex.

We prove several results about the fundamental groupoid $\text{SHom}_{\leq 1}(A,B)$, including invariance under quasi-isomorphism $B' \rightarrow B$, and that the automorphism groups are abelian. We also indicate some applications of this work.

Typed notes: https://drive.google.com/file/d/1sMzwoC_DGCotOfak8o8wYpmttgZELf6l/view

arXiv eprint: <https://arxiv.org/abs/2602.11943>