Department of Mathematics, BGU

AGNT

On *Wednesday, November ,3 2021*

At *16:00 – 17:15*

In *101-*

Ariel Weiss (BGU)

will talk about

Prime torsion in the Tate-Shafarevich groups of abelian varieties over $\mathbb{Q}$

Abstract: Very little is known about the Tate-Shafarevich groups of abelian varieties. On the one hand, the BSD conjecture predicts that they are finite. On the other hand, heuristics suggest that, for each prime p, a positive proportion of elliptic curves $E/\mathbb{Q}$ have $\Sha(E)[p] \ne ,0$ and one expects something similar for higher dimensional abelian varieties as well. Yet, despite these expectations, it seems to be an open question whether, for each prime p, there exists even a single elliptic curve over $\mathbb{Q}$ with $\Sha(E)[p] \ne .0$ In this talk, I will show that, for each prime p, there exists a geometrically simple abelian variety $A/\mathbb{Q}$ with $\Sha(A)[p]\ne .0$ Our examples arise from modular forms with Eisenstein congruences. This is joint work with Ari Shnidman.