

Department of Mathematics, BGU

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# AGNT

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*On Wednesday, May ,18 2022*

*At 16:00 – 17:00*

*In 101-*

Amit Ophir (HUJI)

will talk about

## **Ribet's lemma for $GL_2$ modulo prime powers**

Abstract: Ribet's lemma is an algebraic statement that Ribet used in his proof of the converse of Herbrand's theorem. Since then various generalisations of Ribet's lemma have been found, with arithmetic applications. In this talk I will discuss a joint work with Ariel Weiss in which we show that two measures of reducibility for two dimensional representations over a DVR are the same, thus answering a question of Bellaïche and Chenevier, and deducing from it a particular generalisation of Ribet's lemma. An interesting feature of the proof is that it applies to both the residually multiplicity-free and the residually non-multiplicity-free cases. I will discuss an application to a local-global principle for isogenies of elliptic curves.