

Department of Mathematics, BGU

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## Colloquium

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*On Tuesday, November 30 2021*

*At 14:30 – 15:30*

*In Math 101-*

Itay Londner (UBC)

will talk about

### **Tiling the integers with translates of one tile: the Coven-Meyerowitz tiling conditions for three prime factors**

Abstract: It is well known that if a finite set of integers  $A$  tiles the integers by translations, then the translation set must be periodic, so that the tiling is equivalent to a factorization  $A+B=Z_M$  of a finite cyclic group. Coven and Meyerowitz (1998) proved that when the tiling period  $M$  has at most two distinct prime factors, each of the sets  $A$  and  $B$  can be replaced by a highly ordered “standard” tiling complement. It is not known whether this behaviour persists for all tilings with no restrictions on the number of prime factors of  $M$ . In joint work with Izabella Laba (UBC), we proved that this is true when  $M=(pqr)^2$ . In my talk I will discuss this problem and introduce some ingredients from the proof.