Department of Mathematics, BGU

Colloquium

On *Tuesday, June ,18 2019*

At *14:30 – 15:30*

In *Math 101-*

Eran Nevo (HUJI)

will talk about

On face numbers of polytopes

Abstract: A polytope is called simplicial fi all its proper faces are simplices. The celebrated g-theorem gives a complete characterization of the possible face numbers (a.k.a. f-vector) of simplicial polytopes, conjectured by McMullen 70' and proved by Billera-Lee (sufficiency) and by Stanley (necessity) .80' The latter uses deep relations with commutative algebra and algebraic geometry. Moving to general polytopes, a finer information than the f-vector is given by the flag-f-vector, counting chains of faces according to their dimensions. Here much less is known, or even conjectured.

I will discuss what works and what breaks, at least conjecturally, when passing from simplicial to general polytopes, or subfamilies of interest.