

המחלקה למתמטיקה, בן-גוריון

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## קולוקוויום

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ביום שלישי, 10 בינואר, 2023

בשעה 14:30 – 15:30

בMath-101

ההרצאה

### and Old - Problems Isoperimetric Multi-Bubble New

חינתן על-ידי

(Technion) Milman Emanuel

**תקציר:** The classical isoperimetric inequality in  $\mathbb{R}^n$  Euclidean space states that among all sets ("bubbles") of prescribed volume, the one that minimizes surface area is a ball. In this talk, we consider more general spaces, such as  $n$ -spheres  $\mathbb{S}^n$  and  $n$ -dimensional Gaussian space  $\mathbb{G}^n$  (i.e. Gaussian measure). We consider one-dimensional bubbles (possibly disconnected) which minimize their total surface area. We discuss how these bubbles interface with each other and how they are counted.

single-bubble case, classical isoperimetric problem, double-bubble conjecture resolved by Ros and Ritor'e Morgan, Hutchings, 2000. In  $\mathbb{R}^n$  space Euclidean in spherical three by given is double-bubble minimizing a of boundary the – well) as Sullivan~J. of conjecture general more A angles.  $120^\circ$ -degree at meeting caps in multi-bubble optimal the  $n+1$ ,  $\leq p$  when that asserts 1990's the from Voronoi the taking by obtained is  $\mathbb{S}^n$  in as well (as  $\mathbb{R}^n$  appropriate applying and  $\mathbb{S}^n$  in points equidistant  $p+1$  of cells backwards). (and  $\mathbb{R}^n$  to projections stereographic multi-bubble analogous the resolved we Neeman, Joe with together, 2018. In unique the –  $\mathbb{G}^n$  space Gaussian in bubbles  $n \leq p$  for conjecture Voronoi the by given is area surface Gaussian total the minimizes which partition describe we talk, the In points. equidistant  $p+1$  translated) (appropriately of cells problem multi-bubble the on progress recent as well as work, that in approach our minimizing that show we particular, In  $\mathbb{S}^n$ . and  $\mathbb{R}^n$  on  $p$  when spherical always are  $\mathbb{S}^n$  and  $\mathbb{R}^n$  in bubbles the (e.g.  $5 \leq p$  addition in when conjectures latter the resolve we and  $n$ ,  $\leq$  conjectures quadruple-bubble the and  $3 \leq n$  when conjectures triple-bubble  $4 \leq n$  when