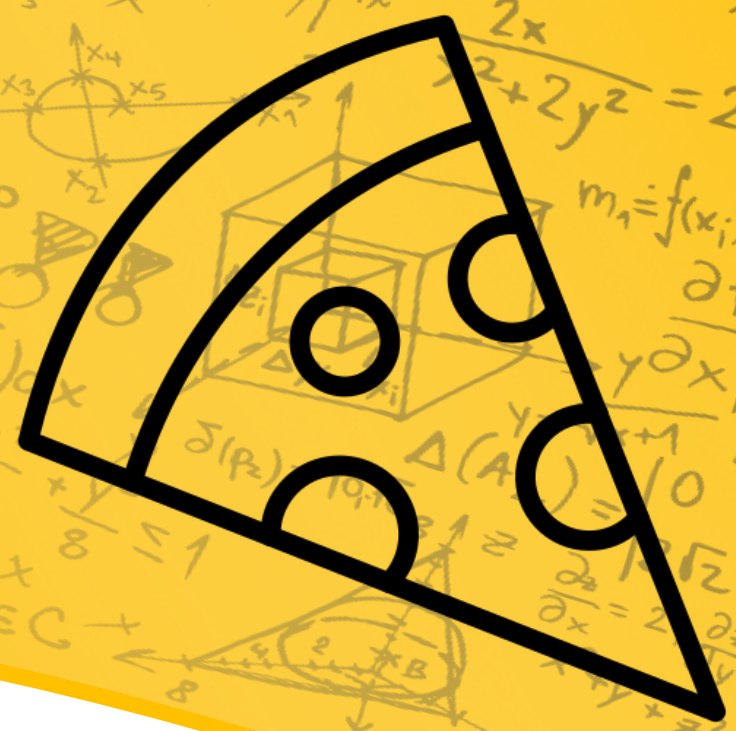
הטכניון
מכון טכנולוגי לישראל

הפקולטה למתמטיקה

The Faculty of Mathematics
Invites you to the

Pizza seminar



Time &

Wednesday, July 17, 13:30
8th floor lounge, Amado bldg

Title

A gap labeling theorem for Schrödinger operators on metric graphs

Speaker

Gilad Sofer (Technion)

Abstract

Given a Schrödinger operator on Rn or Zn, we are often interested in its integrated density of states, which roughly counts the number of states per unit volume in the system. Special attention is often given to the values the integrated density of states attains inside spectral gaps, which are known as gap labels. These gap labels are also of significant physical importance, as seen in the quantum hall effect, where they correspond to the possible values of the Hall conductance.

In this talk, I will discuss an ongoing work with Ram Band, that focuses on the gap labels for Schrödinger operators on complex networks of conductors, known as quantum graphs. We show that the gap labels for such quantum graphs are contained in the image of a naturally defined homomorphism, which depends on both the geometry of the graph, and the dynamics governing its local structure. This provides a method to compute the possible gap labels for large families of quantum graphs, offering new insights into their spectral properties and potential applications.