Department of Mathematics, BGU

OA/OT Seminar

On *Tuesday, December ,17 2019*

At *11:00 − 12:00*

In *101-*

Marina Prokhorova (Technion)

will talk about

Family index for sefl-adjoint elliptic boundary value problems

Abstract: An index theory for elliptic operators on a closed manfiold was developed by Atiyah and Singer. For a family of such operators parametrized by points of a compact space X, they computed the K^0(X)-valued analytical index in purely topological terms. An analog of this theory for sefl-adjoint elliptic operators on closed manfiolds was developed by Atiyah, Patodi, and Singer; the analytical index of a family in this case takes values in the K^1 group of a base space.

If a manfiold has non-empty boundary, then boundary conditions come into play, and situation becomes much more complicated. The integer-valued index of a single boundary value problem was computed by Atiyah and Bott. This result was recently generalized to K^0(X)-valued family index by Melo, Schrohe, and Schick. The sefl-adjoint case, however, remained open.

In the talk I shall present a family index theorem for sefl-adjoint elliptic operators on a surface with boundary. I compute the K^1(X)-valued analytical index in terms of the topological data of the family over the boundary. The talk is based on my preprint arXiv:1809.04353.

Please Note the Unusual Time!