Department of Mathematics, BGU

Logic, Set Theory and Topology

On *Tuesday, January ,5 2016*

At *12:15 – 13:40*

In *Math 101-*

Tulsi Srinivasan (Ben-Gurion University of the Negev)

will talk about

The Lusternik-Schnirelmann category of general metric spaces

Abstract: The Lusternik-Schnirelmann category (LS-category) is a topological invariant that has historically been studied for absolute neighbourhood retracts. I will discuss how the theory of the LS-category can be extended to general metric spaces. One can obtain upper bounds for the LS-category of general spaces by using dimension-theoretic techniques to prove analogues to the Grossman-Whitehead theorem and Dranishnikov's theorem. One can also obtain lower bounds in terms of cup-length, category weight and Bockstein maps. These results can be used to calculate the LS-category for some compacta like the Menger spaces and Pontryagin surfaces. I will also compare this definition with Borsuk's shape theoretic LS-category. Finally, I will talk about potential applications of this work to geometric group theory, specfiically the possibility of obtaining an analogue to the Bestvina-Mess formula in terms of LS-category.