ALEXANDER DRANISHNIKOV, University of Florida

On Topological Complexity of Nonorientable Surfaces

The topological complexity $TC(X)$ of a space $X$ was defined by M. Farber as a numerical invariant which measures the navigational complexity of $X$ considered as a configuration space of a mechanical system. $TC(X)$ can be defined as the minimal $k$ such that $X \times X$ can be covered by $k$ open sets each of which deformable into the diagonal $\Delta X$. We recall that the LS-category $catY$ of $Y$ is the minimal number $k$ such that $Y$ can be covered by $k$ open sets each of which can be deformable into a point. Thus the equality $TC(X) = cat((X \times X)/\Delta X)$ seems to be natural for reasonable $X$. We show that this equality does not hold true for nonorientable surfaces $X$ of genus $\geq 1$. 