

Topology Seminar

Bena Tshishiku

of Harvard University will be speaking on

Obstructions to Nielsen realization

on March 20 at 4:30 in
MIT Room 2-131

Let M be a manifold, and let $\text{Mod}(M)$ be the group of diffeomorphisms of M modulo isotopy (the mapping class group). The Nielsen realization problem for diffeomorphisms asks, “Can a given subgroup $G < \text{Mod}(M)$ be lifted to the diffeomorphism group $\text{Diff}(M)$?” This question about group actions is related to a question about flat connections on fiber bundles with fiber M . In the case M is a closed surface, the answer is “yes” for finite G (by work of Kerckhoff) and “no” for $G = \text{Mod}(M)$ (by work of Morita). For most infinite $G < \text{Mod}(M)$, we don’t know. I will discuss some obstructions that can be used to show that certain groups don’t lift. Some of this work is joint with Nick Salter.