

# Topology Seminar

**Bena Tshishikué**

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. é

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