Topology Seminar

Sofia Marlasca Aparicio

of The University of Oxford will be speaking on

Ultrasolid Algebra and Deformation Theory

on October 7 at 4:30 in
MIT Room 2-131

Solid modules over $\mathbb{Q}$ or $\mathbb{F}_p$, introduced by Clausen and Scholze, are a well-behaved variant of complete topological vector spaces that forms a symmetric monoidal Grothendieck abelian category. For a discrete field k, we construct the category of ultrasolid k-modules, which specialises to solid modules over $\mathbb{Q}$ or $\mathbb{F}_p$. In this setting, we show some commutative algebra results like an ultrasolid variant of Nakayama's lemma. We also explore higher algebra in the form of animated and E8 ultrasolid k-algebras, and their deformation theory. We focus on the subcategory of complete profinite k-algebras, which we prove is contravariantly equivalent to equal characteristic formal moduli problems with coconnective tangent complex, and interpret this result in terms of Koszul duality.