# Topology Seminar

## Joana Cirici

of Universitat de Barcelona will be speaking on

# Galois actions, purity and formality with torsion coefficients

on November 8 at 4:30 in
MIT Room Zoom

The notion of formality first arose in rational homotopy theory, but it makes sense in any context in which chain complexes interact with multiplicative structures and has multiple applications beyond its original purpose. The idea that purity implies formality goes back to Deligne, Griffiths, Morgan and Sullivan, who used the Hodge decomposition to show that compact Kähler manifolds are formal over the rational numbers. Following the ideas behind Deligne's philosophy of weights, I will explain how to use Galois actions on étale cohomology to study formality with torsion coefficients for algebraic structures associated to certain schemes defined over a finite field. As an application, I will review results for configuration spaces on the complex space and for the operad of little disks. This is joint work with Geoffroy Horel.