Topology Seminar

Peter Haine

of Institute for Advanced Study will be speaking on

Spectral weight filtrations

on April 24 at 4:30 in
MIT Room 2-131

This talk is a report on joint work in progress with Piotr Pstrągowski. Pstrągowski defined a left adjoint $SH()^{cell} \to Syn^{ev}$ from cellular - motivic spectra to even (MU-based) synthetic spectra. This functor refines the Betti realization of a cellular motivic spectrum, and for any prime p, restricts to an equivalence on p-complete objects. We'll explain how to further refine the Betti realization functor $SH() \to Sp$ to a left adjoint $SH() \to Syn$ to all synthetic spectra. To do this, we'll give a description of motivic spectra as sheaves on a subcategory of compact pure motives. This description also lets us show that for a complex-orientable connective ring spectrum A, the A-linear Betti realization $SH() \to Mod_A$ refines to a left adjoint functor landing in filtered A-modules. We're also able to give a new construction of the Gillet–Soulé weight filtration on the compactly supported integral Betti cohomology of a complex variety.