Topology Seminar

Kyle Ormsby

of Reed College will be speaking on

The slice spectral sequence for the η-periodic motivic sphere

on October 21 at 3:15 in
MIT Room 2-131

Infamously, the motivic Hopf map η is non-nilpotent, and the η-periodic motivic sphere spectrum detects this phenomenon. I will describe a slice-theoretic approach to this object, resulting in a computation of the E_2-page of the η-periodic slice spectral sequence. This permits a complete computation of the homotopy groups of the η-periodic sphere when -1 is a sum of four squares in the base field. We also prove that, for a general field k, this spectral sequence is determined by the η-periodic slice spectral sequence over R. Some delicate convergence problems obstruct the final resolution of this problem, and the audience is invited to solve these. Our computations lead to a conjecture about the η-periodic sphere as a "connective Witt-theoretic J-spectrum," and also promise to help with slice computations of the motivic sphere. This is joint work with Oliver Röndigs.

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