



# Algebra/Topology Seminar

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## ON THE ADAMS ISOMORPHISM FOR EQUIVARIANT ORTHOGONAL SPECTRA — PART 1

Thursday, September 19, 2013

1:15 p.m. in ES-143

ABSTRACT. This series of talks has two goals. The first one is to present a reasonably self-contained introduction to equivariant orthogonal spectra, a modern framework for equivariant stable homotopy theory. The second one is to report on joint work with Holger Reich, in which we give a natural construction and a direct proof of the Adams isomorphism for equivariant orthogonal spectra. In particular I will define and explain all the technical terms used in the following paragraph, which is a more detailed abstract for the last talk of the series.

“For any finite group  $G$ , any normal subgroup  $N$  of  $G$ , and any orthogonal  $G$ -spectrum  $X$ , we construct a natural map  $A$  of orthogonal  $G/N$ -spectra from the homotopy  $N$ -orbits of  $X$  to the derived  $N$ -fixed points of  $X$ , and we show that  $A$  is a stable weak equivalence if  $X$  is  $N$ -free. This recovers a theorem of Lewis, May, and Steinberger in the equivariant stable homotopy category, which in the case of suspension spectra was originally proved by Adams. We emphasize that our ‘Adams map’  $A$  is natural even before passing to the homotopy category. One of the main tools we develop is a fibrant replacement construction with good functorial properties, which we believe is of independent interest.”