Topology Seminar

Michael Andrews
of MIT will be speaking on

The $\nu_1$-periodic part of the Adams spectral sequence at an odd prime -
dancers to a discordant system

on April 13 at 4:30 in
MIT Room 2-131

Algebraic topologists are interested in the class of spaces which can be built
from spheres. For this reason, when one tries to understand the continuous maps
between two spaces up to homotopy, it is natural to restrict attention to the maps
between spheres first. The groups of interest are called the homotopy groups of
spheres. Topologists soon realized that it is easier to work in a stable setting.
Instead, one asks about the stable homotopy groups of spheres or, equivalently,
the homotopy groups of the sphere spectrum. Calculating all of these groups is
an impossible task but one can ask for partial information.

In particular, one can try to understand the global structure of these groups by
proving the existence of recurring patterns; this is analogous to the fact that
we cannot find all the prime numbers, but we can prove theorems about their
distribution. These patterns are clearly visible in spectral sequence charts for
calculating $\pi_*(S^0)$ and my thesis came about because of my desire to understand
the mystery behind these powerful dots and lines, which others in the field
appeared so in awe of. I will tell the story of the stable homotopy groups of
spheres for odd primes at chromatic height 1, through the lens of the Adams
spectral sequence.