Topology, Algebraic Geometry, & Dynamics Seminar

Explicit modular forms via the homotopy groups of spheres.

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Given a prime p, the p-components of the stable homotopy groups of spheres can be approximated by an elaborate algebraic tool called the Adams-Novikov spectral sequence. The input for this spectral sequence is a bi-graded Ext group, some of whose generators are known to be associated with number-theoretic objects. For example, if $p > 2$, an infinite subset of its generators known as the alpha family lies in 1-1 correspondence with certain Bernoulli numbers. Another infinite subset of generators, known as the beta family, is known to correspond with modular forms over the integers that satisfy certain congruence and non-congruence conditions. This latter correspondence holds for $p > 3$, but its proof does not produce the modular forms explicitly. I will speak about ongoing work toward identifying the modular forms that arise in this algebro-topological setting.

Date: **Friday, January 25, 2019**
Time: **2:30-3:20 pm**
Place: **4106 Exploratory Hall**

For special accommodations, please contact Sean Lawton via email at `slawton3@gmu.edu`.