Colloquium

October 10, 4:05 p.m. (9th Period)
(in the Atrium)

Speaker: Dalton Worsnup

Title: Homotopy Type Theory

<u>Abstract</u>

This talk is meant to be a friendly introduction to Homotopy Type Theory for the non-logician. Homotopy type theory is a recent development in the foundation of mathematics inspired by a striking connection between homotopy theory and type theory. A type A is interpreted as a space, a path between points $a : A$ and $b : A$ is interpreted as a witness that a equals b in A, and under the proposition-as-types scheme, this path is encoded as a point p inhabiting the type $a =_A b$. This leads to a natural formalization in homotopy type theory of all known mathematical endeavors from propositional logic to higher category theory into what are called homotopy n-types. Finally, through the introduction of higher inductive types and the the Univalence Axiom, homotopy type theory has lead to novel new proofs of known results.