

Kempner Colloquium

RATIONAL HOMOTOPY THEORY AND ITS COMPLETIONS

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Rational homotopy theory as developed by Quillen and Sullivan allows a complete description of its objects of study by differential graded algebras over the rational numbers. Thus rationally some of the basic classification problems in homotopy theory become "moduli problems" in algebraic geometry and number theory. Halperin, Schlessinger, and Stasheff showed how to describe all rational homotopy types having a given cohomology algebra. I will discuss this moduli construction and how completion of the rationals is useful for its analysis. In particular, homotopy theory over the finite adeles seems to accommodate the known fact that even for smooth projective varieties defined over a number field, the rational homotopy type of the associated topological space can depend on the embedding of the number field in the complex numbers.

Tuesday November 18, 2014
12:10 PM - 12:50 PM
MATH 350