Courant Institute of Mathematical Sciences  
Mathematics Colloquium  
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Title: Survey on the Farrell-Jones Conjecture  

Abstract:  

We give a gentle introduction to the Farrell-Jones Conjecture. It gives a way of computing algebraic K- and L-groups of groups rings. We will not focus on its technical aspects, but instead explain that it implies many other classical easy to understand conjectures in topology, algebra and geometric group theory, e.g., Borel's Conjecture about topological rigidity of aspherical manifolds, Kaplansky's Conjecture idempotents in the group ring of torsion-free groups and Gromov's Conjecture about hyperbolic groups with spheres as boundary and the Novikov Conjecture about higher signatures.  

We give a survey of the status of the Farrell-Jones Conjecture and indicate the basic ingredients for its proof for certain groups which is a attractive mix of methods from controlled topology, geometric group theory and flow spaces. The point is that meanwhile the Farrell-Jones Conjecture, although it is much more general than the classical conjectures mentioned above, has been proved for a very large class of groups for which the classical conjectures had previously not been known before.