



UNIVERSITY OF ROCHESTER

# Department of Mathematics Colloquium Series

## ABSTRACT

The Langlands program, at the most basic level, involves the study of finite dimensional linear representations of the Galois group of the algebraic closure of the rational numbers. These representations have become increasingly important; for example, Wiles' celebrated proof of Fermat's Last Theorem rests on a result for linear representations of dimension 2. Linear representations naturally give rise to trace formulas (the trace here being a generalization of the usual trace of a linear transformation). Weighted orbital integrals are the terms on the geometric side of the trace formula. A deeper understanding of their properties is becoming an increasingly important ingredient for progress in the Langlands program.

We shall begin with a brief and informal description of the general goals of the Langlands program. We shall then describe in elementary terms how weighted orbital integrals arise. Finally, we shall outline the solution of a comparison problem for weighted orbital integrals on different real Lie groups.

The talk is addressed to an audience with interest in mathematics.

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University of Toronto

*Weighted Orbital Integrals  
and the Langlands Program*

Thursday, March 9, 3:30–4:30 p.m.  
Hoyt Auditorium

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