

2019

# H.N. Gupta Memorial Lecture

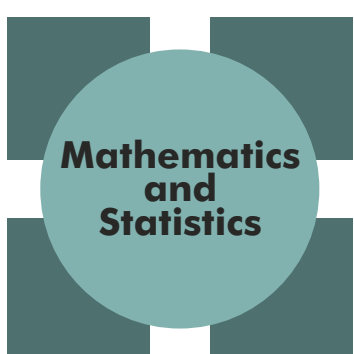
**Julia Gordon**  
University of  
British Columbia

Friday, October 4, 2019  
3:30-4:30 p.m.

Research and Innovation Centre 208  
(RI 208)

## **Quantifier Elimination and Uniform Bounds for Oscillatory Integrals**

I will talk about a somewhat unexpected application of model theory to harmonic analysis. Model theory stems from formal logic and can provide very strong results of a general nature, such as the quantifier elimination theorems of Tarski-Seidenberg and Jan Denef (which I will review). It turns out that these theorems can lead to uniform bounds for families of oscillatory integrals, both over the  $p$ -adic fields and over the reals. I will give an overview of these results with a focus on applications in representation theory. This is joint work with Raf Cluckers and Immanuel Halupczok.



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