

STUDENT SEMINAR

YASH TOTANI **(MATHEMATICS)**

MATHEMATICS & COMPUTER SCIENCE
UNIVERSITY OF LETHBRIDGE

Title: Some Interesting Infinite Series

Abstract:

An infinite series is the sum of infinitely many numbers usually with an underlying pattern. Infinite series find their applications in mathematics, physics, biology, chemistry and engineering to name a few. In this talk we will look at some infinite sums and the techniques required to solve them. We will see how Taylor series expansions for the well known trigonometric functions can yield surprisingly powerful results. We will discuss Euler's solution to the Basel problem which asks for the summation of the reciprocals of squares of positive integers and a few open questions related to summations of the same type.

This part of the talk is accessible to all undergrads.

Depending on the amount of time left, we will dive into some basic properties of modular forms and discuss the well known Eisenstein series of a given weight for the whole modular group. We will discuss how the Eisenstein series can be used to prove a surprising theorem about an infinite series that Ramanujan wrote to Hardy in one of his letters (letter 5. Identity number 4). The basic concepts required to understand this topic will be discussed in brief and will be accessible to anyone with an interest in learning new things.

WHEN
FRIDAY, FEB 14
12:00—12:50

WHERE
D634

WHO
ANYONE WHO'S
INTERESTED

REFRESHMENTS
DONUTS



Pacific Institute *for the*
Mathematical Sciences

MATHEMATICS AND COMPUTER SCIENCE

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