2022 CANTRELL LECTURES

LECTURE 1

May 2, 2022
MLC Room 148
4 pm

NUMBER THEORY AND
3-DIMENSIONAL
GEOMETRY

LECTURE 2

May 3, 2022
Boyd Room 328
4 pm

SYMPLECTIC L-FUNCTIONS
AND THEIR TOPOLOGICAL
ANALOGUES

LECTURE 3

May 4, 2022
Boyd Room 328
2 pm

RELATIVE LANGLANDS
DUALITY

Come join the 2022 Cantrell Lectures by Dr. Akshay Venkatesh!

Dr. Venkatesh is a professor at the Institute for Advanced Study in Princeton. Among many other honors, in 2018, he was awarded the Fields Medal for his synthesis of analytic number theory, homogeneous dynamics, topology, and representation theory.

The citation describes him as having "made profound contributions to an exceptionally broad range of subjects in mathematics" and recognizes him for having "solved many longstanding problems by combining methods from seemingly unrelated areas, presented novel viewpoints on classical problems, and produced strikingly far-reaching conjectures."

Lecture 1

Number Theory and 3-Dimentional Geometry

"There is a wonderful analogy between the theory of numbers, and 3-dimensional geometry. For example, prime numbers behave like knots! I will explain some of the history of this analogy and how it is evolving."

- Dr. Venkatesh

NOTE: This lecture is highly recommended for all undergraduate students who have taken basic math course (such as a semester of calculus).

Lecture 2

Symplectic L-functions and Their Topological Analogues

"The topology of the symplectic group enters into many different areas of mathematics. After discussing a couple of "classical" manifestations of this, I will explain a new one, in the theory of L-functions, as well as a purely topological analogue of the statement. I am not going to assume any familiarity with the theory of L-functions for the talk. Joint work with Amina Abdurrahman."

- Dr. Venkatesh

Lecture 3
Relative Langlands Duality

"If we are given a compact Lie group G acting on a space X, a powerful tool in "approximately" decomposing the G-action on functions on X is the orbit method. I will describe this method and how it sometimes refines to an exact algebraic statement which involves a "dual" group G^ and dual space X^. This is part of a joint work with David Ben-Zvi and Yiannis Sakellaridis about duality in the relative Langlands program. I will do my best to make the talk comprehensible without any familiarity with the framework of the Langlands program. "

- Dr. Venkatesh

Refreshments will be available in the hall preceding each lecture during the following times:

Lecture 1 (May 2nd) at 3:30 pm

Lecture 2 (May 3rd) at 3:30 pm

Lecture 3 (May 4th) at 1:30 pm

For questions about this event or to register for the banquet on Monday, May 2nd at 6 pm at the National Restaurant in Athens, contact Amber Jacobs at: arjacobs@uga.edu