

2026

H.N. Gupta Memorial Lecture

Victor Pambuccian

Arizona State University

Friday, October 30

3:30-4:30 pm

**Research and
Innovation Centre 209
or on Zoom**

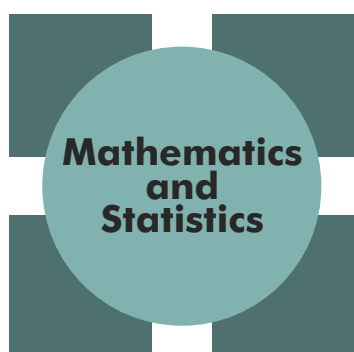


The fine structure of the parallel postulate

Although the parallel postulate is some 2300 years old, it has still, during the past 5 years, revealed several of its mysteries. It is, in fact, the conjunction of two distinct statements, that can be formulated in terms of point-line incidence alone, so it expresses two independent ideas. We will look at this situation with an interest in the simplicity of all statements involved. Simplicity is here understood in syntactical terms: Simplicity of the language in which statements are expressed, simplicity in terms of quantifier-simplicity, or number-of-variables simplicity, simplicity in the sense of being a positive statement, one that has only "and" and "or" as logical connectives.

On this journey, we will meet two axioms that play an essential role: Aristotle's axiom ("The perpendiculars dropped from one side of an angle to the other grow without bound") and the *Lotschnittaxiom* ("The perpendiculars raised on the sides of a right angle intersect").

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