

MATHEMATICAL STRUCTURES MINI-COURSE

Symmetries of Differential Equations from the Point of View of Physics

Dr Andronikos Paliathanasis (Catholic University of the North, Chile)

DATES: Thurs, 29 May & Tues, 10 June 2025 | 11h00 – 13h00 SAST
VENUE: Online

ABSTRACT

In this Mini-course, we explore the application of symmetries of differential equations in the physical sciences. We present a geometric approach to symmetries, with special emphasis on Noether's theorem and its role in deriving conservation laws. The course includes applications drawn from Newtonian physics, general relativity, and quantum physics.

BIOGRAPHY

Dr Andronikos Paliathanasis is a researcher in theoretical and mathematical physics, with a strong background in the geometric and algebraic analysis of differential equations, symmetry methods, and their applications in cosmology and gravitational theories. He holds a PhD in Mathematical Physics from the Department of Physics at the University of Athens, where his doctoral research focused on the role of symmetries and integrability in the analysis of physical systems. His research spans a wide range of topics in mathematical physics and cosmology. He has published over 270 peer-reviewed articles in international journals, with a strong citation record and an h-index 48. He is an active reviewer for many journals in mathematical and theoretical physics and has served on organizing committees for international conferences. In addition, he has supervised undergraduate and postgraduate students, contributed to the teaching of physics and mathematics courses, and has a growing interest in the application of statistical and machine learning methods to cosmological data analysis.



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