



EMERGENT GEOMETRY AND QUANTUM GRAVITY

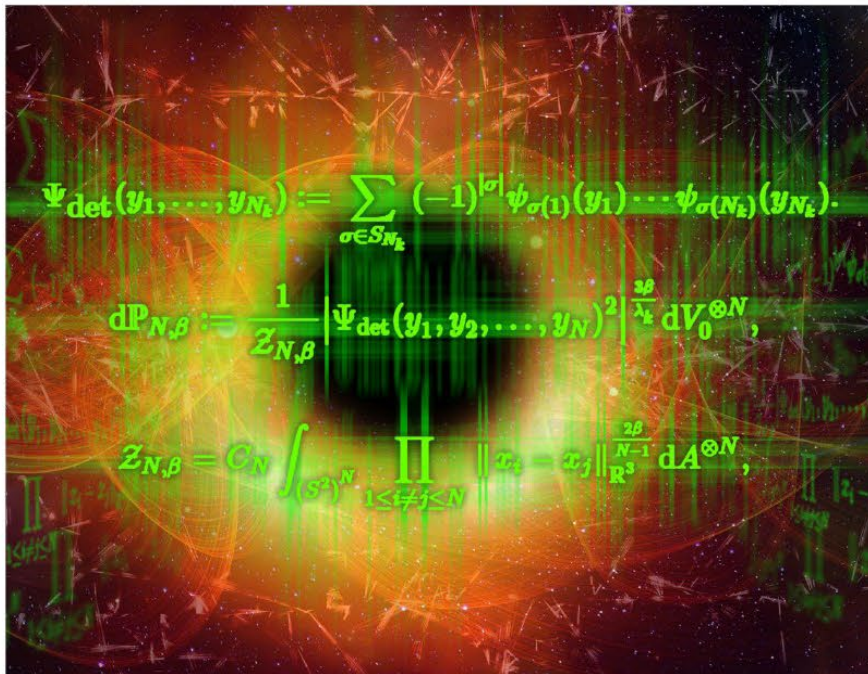
Professor Daniel Persson
Chalmers University of Technology

COLLOQUIUM

Mathematics and Mathematical Statistics

11 May, 15.15-16.00

[Zoom-link](#)



What does quantum gravity say about the birth of the universe?

How does space-time arise from bubbles of dark energy?

What is the mathematics governing black holes?

Abstract: It is an outstanding question in quantum gravity to describe the precise process in which the classical spacetime geometry emerges from a quantum state. I will describe recent joint work with Robert Berman and Tristan Collins where we propose a construction in the context of the gauge/gravity correspondence, that produces the classical geometry from a quantum state at the boundary of spacetime. This result draws upon, and extends, recent developments in mathematics, in the so-called probabilistic approach to Kähler-Einstein geometry.

The talk is based on the paper *Emergent Sasaki-Einstein Geometry and AdS/CFT*, *Nature Communications*, 2022.



UMEÅ UNIVERSITY

Contact: Fredrik Ohlsson, Department of Mathematics and Mathematical Statistics

E-mail: fredrik.ohlsson@umu.se, Web: www.umu.se/math