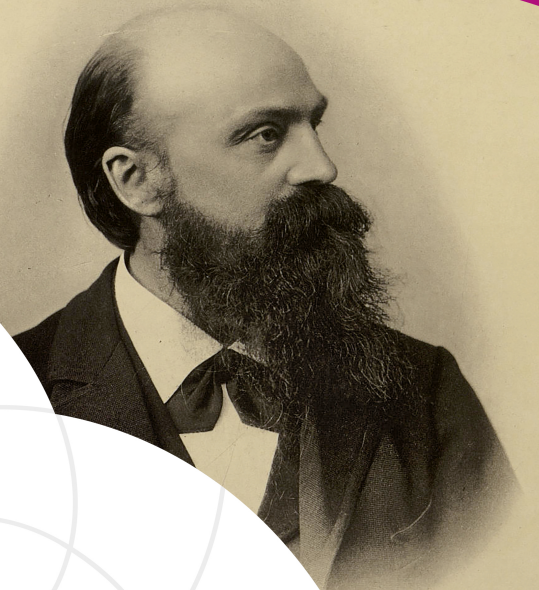


Universität  
Münster



Colloquium Wilhelm Killing

# Expanding black hole cosmologies: On the non-linear stability of Kerr de Sitter spacetimes

Prof. Dr. Volker Schlue (University of Melbourne)  
5 December 2024 | 2:15 pm | M4

Einstein's introduction of the cosmological constant to general relativity provided a mathematical framework for the study of the universe in the large. After a discussion of the early discoveries and ruminations of A Einstein and W de Sitter, I will move on to describe the Kerr de Sitter geometry which models a rotating black hole in an expanding universe. I will motivate the Cauchy problem in the context of the Einstein vacuum equations with positive cosmological constant, and present a recent resolution of the non-linear stability problem for the cosmological region. Among other works, the talk describes contributions by H Friedrich, P Hintz and A Vasy, and my recent joint work with G Fournodavlos.

**Zoom <<https://www.zoom.us/j/66809935905>> will only be active if a request has been sent to <[mmtech@uni-muenster.de](mailto:mmtech@uni-muenster.de)> by 3 December 2024.**  
**Tea time starts at 3:15 pm in the Cluster Common Room (Orléans-Ring 10, ground floor).**

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