



UNIVERSITÄT
LEIPZIG

Special Physics Colloquium

Tuesday, February 13, 2024 at 16:30

Daniel Baumann

University of Amsterdam, Netherlands

Positive Geometry in Cosmology

Cosmology is famously an observational rather than an experimental science. No experimentalists were present in the early universe, and the birth and subsequent evolution of the universe cannot be repeated. Instead, we can only measure the spatial correlations between cosmological structures at late times. A central challenge of modern cosmology is to construct a consistent "history" of the universe that explains these correlations.



Recently, a new bootstrap approach was developed to understand this history using physical consistency conditions alone. In this colloquium, I will explain the basic idea behind this "cosmological bootstrap". I will also describe the search for new geometrical structures, called "positive geometries", which may underlie the theory of cosmological correlations. Finding such structures is one of the central aims of the ERC Synergy Grant project UNIVERSE+. I hope to make the talk accessible to a broad audience, and will not assume any background in cosmology or particle physics.

Venue: Hörsaal für Theoretische Physik (notice change of usual room). Universität Leipzig, Faculty of Physics and Earth Sciences 04103 Leipzig, Linnéstraße 5.

This special colloquium is part of the conference on Positive Geometry in Particle Physics and Cosmology, organized by Max-Planck Institute for Mathematics in the Sciences:

<https://www.mis.mpg.de/events/event/positive-geometry-in-cosmology>

For an up-to-date semester program, sign-up for the physics colloquium mailing list, and subscription to the digital calendars in CalDAV format, head to the colloquiums web page www.physgeo.uni-leipzig.de/events.

