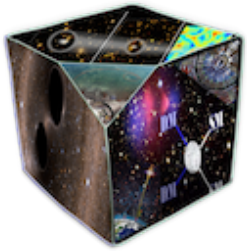

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The path to a neutrino mass sum measurement from cosmology

Thursday, 23 August 2018 15:20 (5 minutes)

Cosmology presents the best hope of measuring the sum of neutrino masses in the future. The CMB has already been a treasure trove of information and will continue to provide ever more precise information with upcoming or proposed CMB experiments, such as LiteBird, CMB-S4, CORE, and PICO. These missions will have great synergy with other branches of cosmology. In particular, massive neutrinos leave a distinct imprint on the matter distribution of the universe, which upcoming large-scale structure surveys Euclid and the SKA will observe with unprecedented levels of precision. The uncertainty in modelling of non-linear structure formation is often neglected in other forecasts, or scales corresponding to this regime are entirely removed. In this work, we take into account that our understanding of non-linear modelling is imperfect. We show that a neutrino mass sum measurement is all but guaranteed from cosmology in the next decade and that this statement is robust to choice of cosmological model or modelling of non-linear effects.

Affiliation

RWTH Aachen

Email address

brinckmann@physik.rwth-aachen.de

Academic position

PhD student

Primary author: BRINCKMANN, Thejs (RWTH Aachen)

Co-authors: ARCHIDIACONO, Maria; CLESSE, Sebastien; C HOOPER, Deanna; LESGOURGUES, Julien (TTK, RWTH Aachen University); Mr SPRENGER, Tim (RWTH Aachen)

Presenter: BRINCKMANN, Thejs (RWTH Aachen)

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