

# Fundamental physics in the cosmos: The early, the large and the dark Universe



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**Fundamental physics in the cosmos:  
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## How general is holography? Flat space limit and soft hairs in higher spin gravity

*Thursday 28 September 2017 14:40 (20 minutes)*

It is still an open question how general holographic dualities are, and what they possibly tell us about quantum gravity in asymptotically flat spacetimes. In this talk I will focus on a concrete example of an holographic duality involving higher spin gravity. In particular, I report on recent progress within three-dimensional higher spin gravity concerning the flat space limit and the soft hair proposal therein. I present a new set of boundary conditions for higher spin gravity, inspired by a recent “soft Heisenberg hair”-proposal for General Relativity. The asymptotic symmetry algebra consists of set of affine  $u(1)$  current algebras. Its associated canonical charges generate higher spin soft hair. The generators of the three-dimensional higher spin version of the Bondi-Metzner-Sachs algebra arise from composite operators of the affine  $u(1)$  currents through a twisted Sugawara-like construction.

**Primary author:** AMMON, Martin (Univ. of Jena)

**Presenter:** AMMON, Martin (Univ. of Jena)

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