



# ***E I N L A D U N G***

im Rahmen des Literaturseminars

zum Vortrag

von

**Daniel Grumiller**

(TU Vienna)

über

***“Soft Heisenberg hair”***

## **Abstract:**

The notion of "soft hair" refers to zero energy excitations in the near horizon region of black holes or cosmologies, advocated by Hawking, Perry and Strominger.

I review recent results on soft hair in three spacetime dimensions. In particular, I focus on the near horizon symmetry algebra, which turns out to be surprisingly simple, namely infinite copies of the Heisenberg algebra. The results are universal (in a sense that I shall make precise) and could generalize to higher dimensions.

Talk based on arXiv papers 1603.04824, 1607.00009, 1607.05360.

**Zeit:** Donnerstag, 24.11.2016, **14.00**

**Ort:** Arbeitsgruppe Gravitation, Währinger Straße 17,  
**Raum 218, 2. Stock**

gez.: P. Chrusciel