

# Soft Heisenberg Hair

## Speaker

Prof. Daniel Grumiller, Technical University of Vienna, Austria

**Date and time:** Sunday, Esfand 06, 1396 (25th of February), 4:30 pm

**Place:** Farmanieh building

## Abstract

"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. The near horizon symmetry algebra is surprisingly simple, namely infinite copies of the Heisenberg algebra. The results are fairly universal and allow a semi-classical construction of microstates for black holes, whose degeneracy correctly accounts for their Bekenstein-Hawking entropy.

**School of Physics**

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