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**Density Density Correlation Function for a Bose-Einstein Condensate Analog Black Hole**[1] PAUL ANDERSON, Wake Forest University, ROBERTO BALBINOT, Dipartimento di Fisica dell Universita di Bologna and INFN sezione di Bologna, ALESSANDRO FABBRI, Departamento de Fisica Teorica and IFIC, Universidad de Valencia-CSIC, RENAUD PARENTANI, Universite Paris-Sud — The density density correlation function is computed for an analog black hole which consists of a Bose-Einstein condensate with an acoustic horizon. The method used relies only on quantum field theory in curved spacetime techniques. A comparison with the results obtained by ab initio full condensed matter calculations is given, confirming the validity of the approximation used provided the profile of the flow varies smoothly on scales compared to the condensate healing length.

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