

Abstract Submitted  
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**Breakdown of scale invariance in a quasi-two-dimensional Bose gas due to the presence of the third dimension**<sup>1</sup> KARINA MERLOTI, ROMAIN DUBESSY, LAURENT LONGCHAMBON, U Paris 13, MAXIM OLSHANI, UMass Boston, HÉLÈNE PERRIN, U Paris 13 — In this presentation, we describe how the presence of the third dimension may break the scale invariance in a two-dimensional Bose gas in a pancake-shaped trap. From the two-dimensional perspective, the possibility of a weak spilling of the atomic density beyond the ground-state of the confinement alters the two-dimensional chemical potential; in turn, this correction no longer supports scale invariance. We compare experimental data with numerical and analytic perturbative results and find a good agreement.

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