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I. Mastroserio - Experimental proof of Quantum Zeno-assisted Noise Sensing

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The ideal quantum Zeno effect is a robust method to protect the coherent dynamics of a quantum system. In particular, in the weak quantum Zeno regime, repeated quantum projective measurements can allow the sensing of semi-classical field fluctuations. In this talk I will show our proposal and demonstration, both theoretical and experimental, of a novel noise-sensing scheme enabled by the weak quantum Zeno regime. We experimentally tested these theoretical results on a Bose-Einstein Condensate of 87Rb atoms realized on an atom chip, by sensing ad hoc introduced noisy fields.