

## Quantum Physics

# Decoherence, Einselection and Classicality of a Macroscopic Quantum Superposition generated by Quantum Cloning

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The high resilience to de-coherence shown by a recently discovered Macroscopic Quantum Superposition (MQS) generated by a quantum injected optical parametric amplifier (QI-OPA) and involving a number of photons in excess of  $5 \times 10^4$  motivates the present theoretical and numerical investigation. The results are analyzed in comparison with the properties of the MQS based on coherent states and NOON states, in the perspective of the comprehensive theory of the subject by W.H.Zurek. In that perspective the concepts of "pointer state", "einselection" are applied to the new scheme.

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