Passaggio d'anno Nanoscienze

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Achieving Heisenberg scaling with maximally entangled states: an analytic upper bound for the attainable root mean square error

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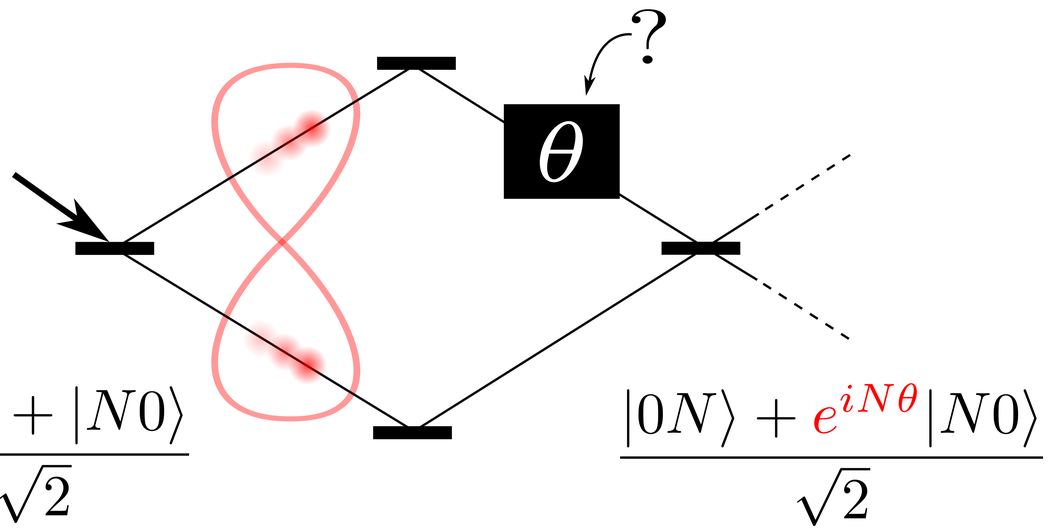
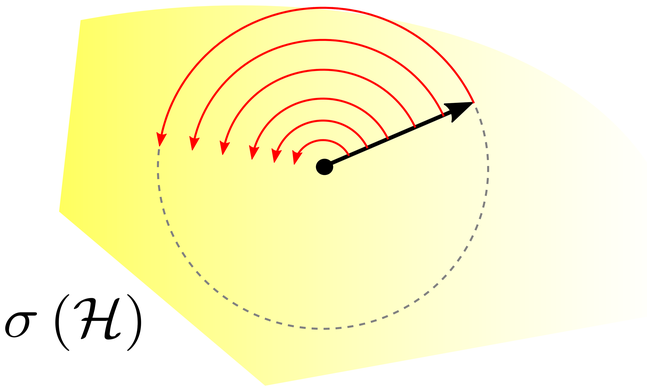
Accepted for Physical Review A.

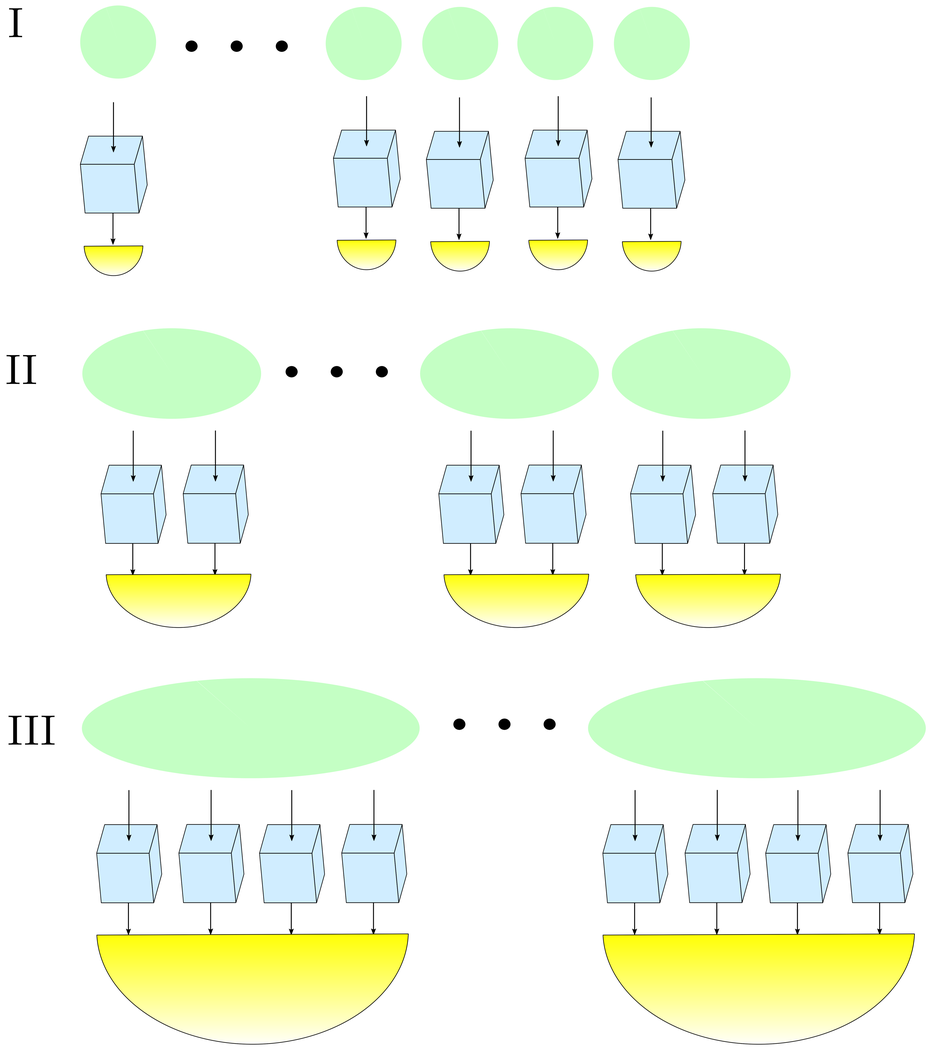


$N \gg 1$

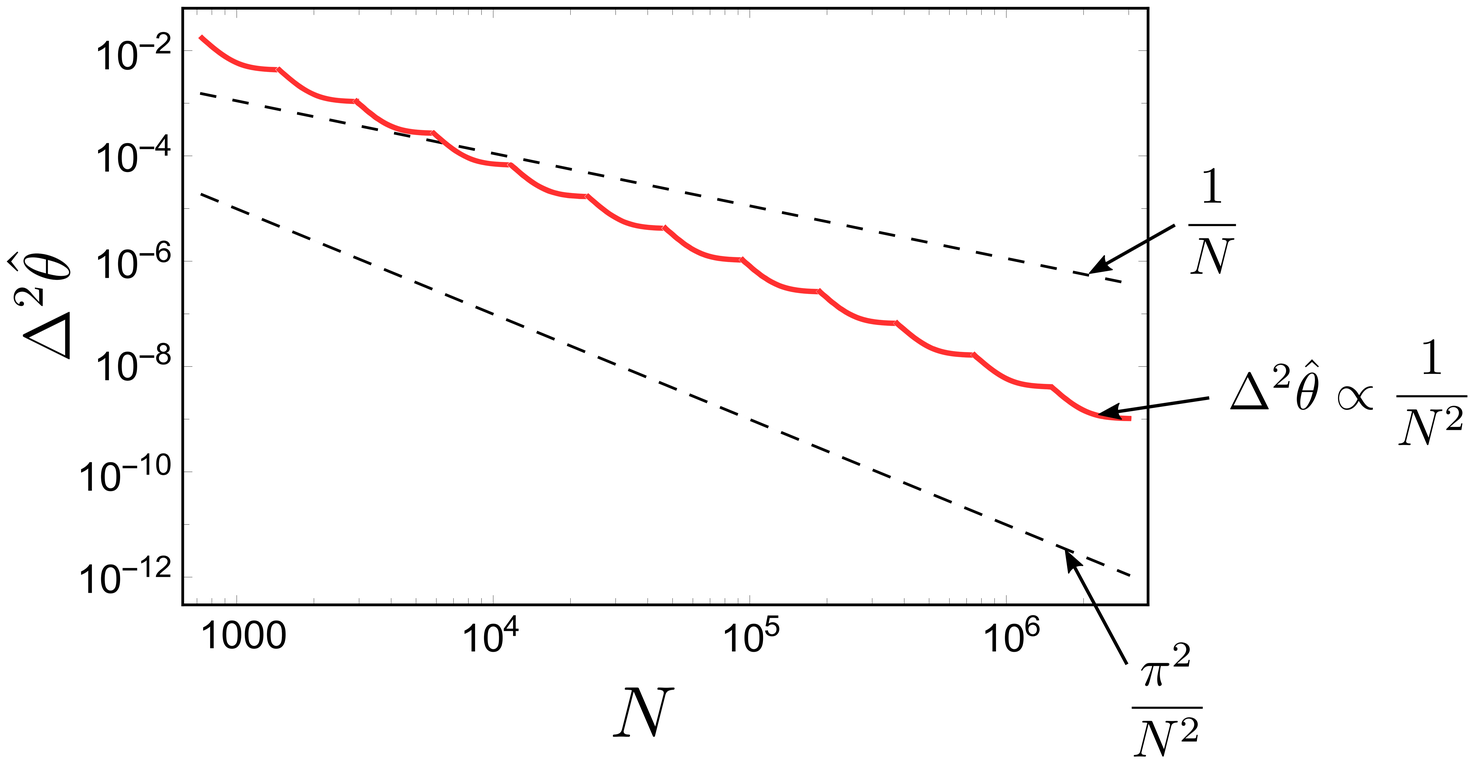


Heisenberg scaling: $\Delta^2\hat{\theta} = E\left[|\hat{\theta} - \theta|^2\right] \propto \frac{1}{N^2}$?

V. Giovannetti, S. Lloyd, and L. Maccone, Phys. Rev. Lett. **96**, 010401 (2006).

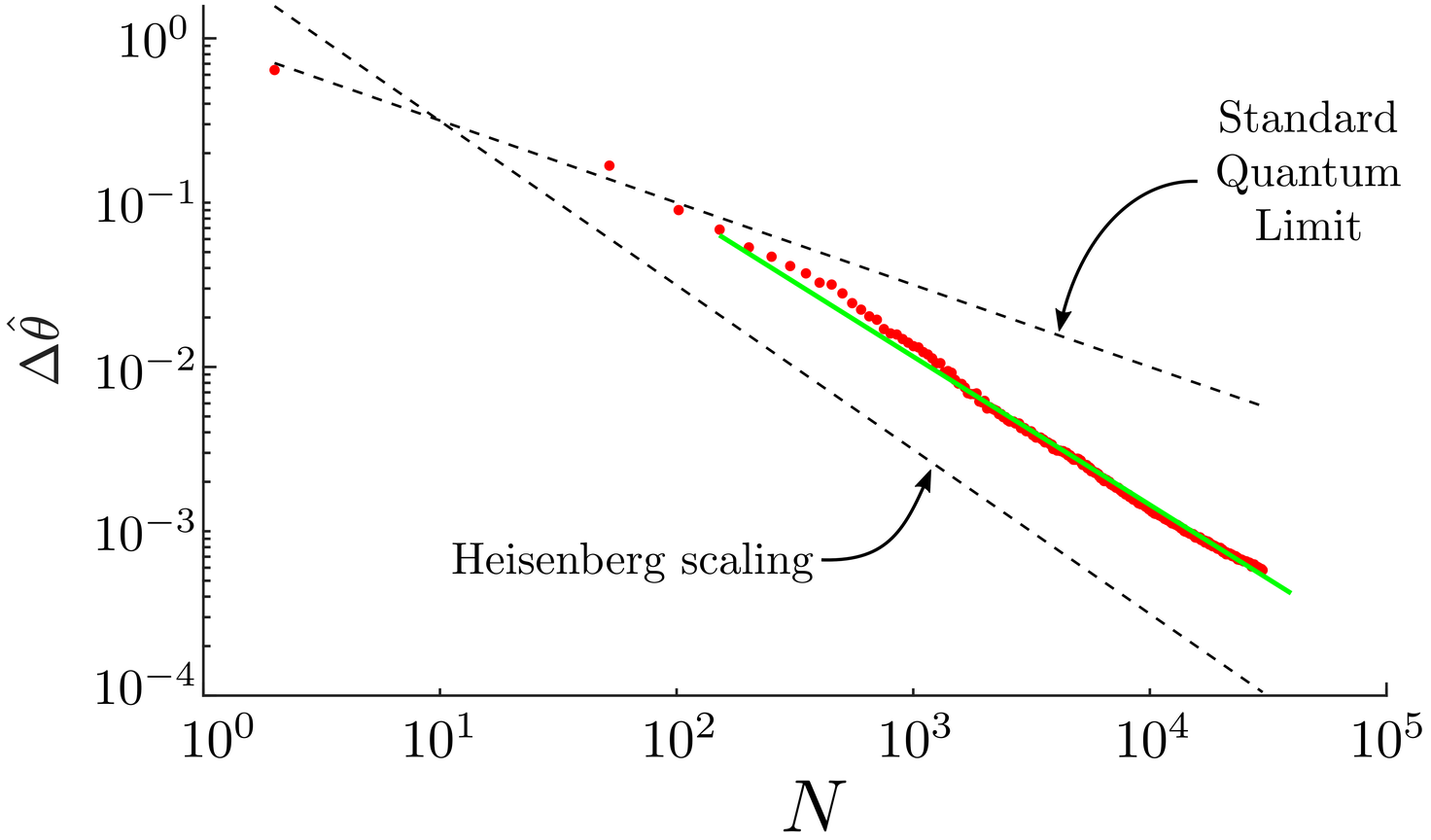


Analytical upper bound:

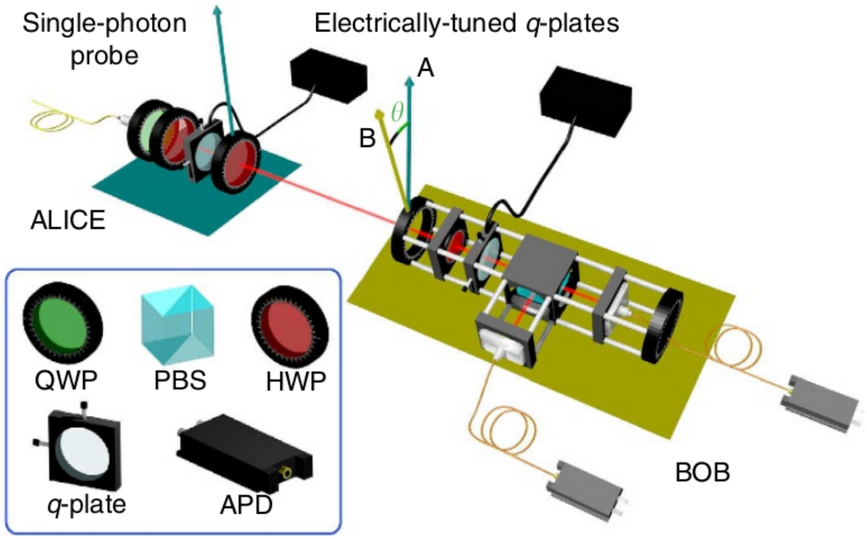


F. Belliardo and V. Giovannetti, arXiv:2007.02994 [quant-ph] (2020).

B. L. Higgins *et al.*, New J. Phys. **11**, 073023 (2009).



Future:
collaboration with the group of
professor Sciarrino in Rome.



V. D'Ambrosio *et al.*, Nat. Commun. **11**, 2432 (2013).