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Propagation of Localization Optimal Entropy Production and Convergence rates for the Central Limit Theorem

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We prove for the rescaled convolution map $f \to f \circledast f$ propagation of polynomial, exponential and gaussian localization. The gaussian localization is then used to prove an optimal bound on the rate of entropy production by this map. As an application we prove the convergence of the CLT to be at the optimal rate $1/\sqrt{n}$ in the entropy (and L^1) sense, for distributions with finite 4th moment.

Subjects:	**Probability (math.PR)**; Mathematical Physics (math-ph)
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