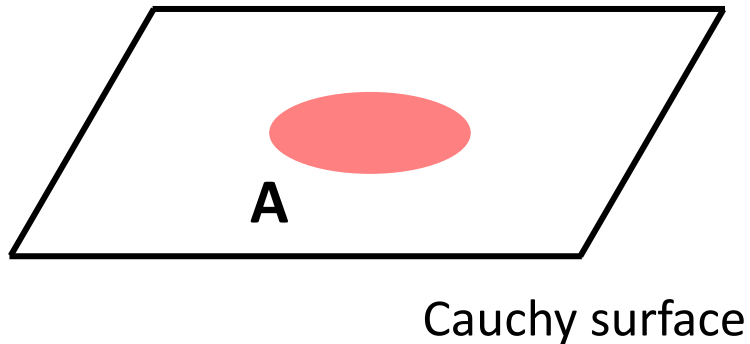


Delocalization of energy by local operators in a ground state of harmonic oscillators

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□ Reeh-Schlieder theorem in QFT

→ this theorem relates to nonlocal correlation in QFT



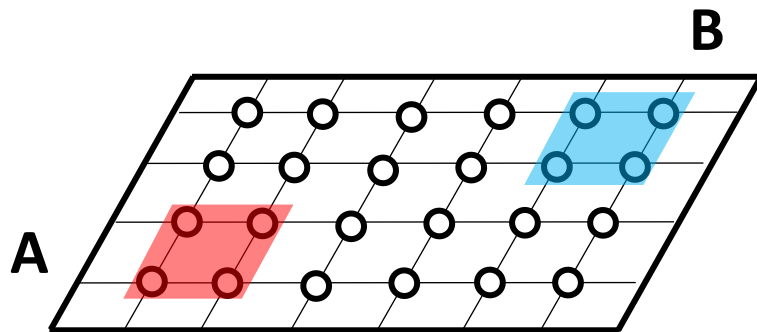
polynomial in the field

$$\mathcal{O}_A = \cdots + \phi(\mathbf{x}_1)\phi(\mathbf{x}_2)\cdots\phi(\mathbf{x}_m) + \cdots$$

arbitrary state $\mathbf{x}_1, \mathbf{x}_2, \dots, \mathbf{x}_m \in A$

$|\Psi\rangle$

$$\mathcal{O}_A |0\rangle \approx |\Psi\rangle$$



To investigate nonlocal property of local operators in a discretized system,

we focus on the energy distribution generated by local operators