

Index

- H_Λ^Φ : hamiltonian, 38
- $\alpha_{\Lambda,t}^\Phi, \alpha_t^\Phi$: evolution operators, 42
- \mathcal{A} : algebra of quasi-local operators, 37
- \mathcal{A}_X : space of operators in $X \subset \mathbb{Z}^d$, 37
- \mathcal{A}_h : hermitian quasi-local operators, 37
- \mathcal{A}_{loc} : algebra of local operators, 37
- \mathcal{I} : interactions with finite norm $\|\cdot\|$, 38
- \mathcal{I}_r : interactions, 38
- $\mathcal{G}_{tr.inv.}^\Phi$: infinite-volume Gibbs states, 41
- $\langle \cdot \rangle$: state, 33
- $\hat{\mathcal{A}}$: subspace of quasi-local operators, 46
- a_Ψ : operator from interaction, 40
- $s(\langle \cdot \rangle)$: mean entropy for state $\langle \cdot \rangle$, 42

- annihilation operator, 18
- antisymmetrisation operator, 16

- Bose-Einstein condensation, 22
- Bose-Hubbard model, 21
- boson, 16

- chessboard estimate, 82
- classical spin configuration, 7
- clustering, 49
- consistent, 37
- creation operator, 18
- critical density (ideal Bose gas), 24

- decomposition of states, 51
- density operator, 33
- Dirac notation, 3
- Duhamel formula, 84

- entropy
 - convexity, 91
 - relative, 91
- ergodic state, 49
- evolution operator, 45
- extremal state, 48

- fermion, 16

- Fock spaces, 17
- free energy, 22, 39

- Gibbs state
 - finite volume, 38
- Gibbs variational principle, 42
- Golden-Thompson inequality, 85

- Hölder inequality for matrices, 81
- hamiltonian, 38
- Hilbert-Schmidt norm, 37
- Hubbard model, 27

- ideal Bose gas
 - critical density, 24
- infrared bound, 65
- interaction, 38

- Klein inequality, 85
- KMS condition, 46

- Lie-Schwinger expansion, 43
- Lieb's concavity theorem, 90
- local observable, 7, 37
- long-range order, 10

- magnetisation, 9
- mixed state, 34
- multicommutator expansion, 43

- normalised trace, 37

- observable
 - local, 37
 - quasilocal, 37
- occupation numbers, 16
- off-diagonal long range order, 25
- operator
 - annihilation, 18
 - creation, 18

- Pauli matrices, 4

- Peierls argument, 58, 62
- Peierls inequality, 86
- Peierls-Bogolubov inequality, 85
- Pinsker's inequality (quantum), 76
- pressure, 22
 - infinite volume, 40
- pure state, 34

- quasi-local observable, 37

- RAS condition, 47
- relative entropy, 91
- Roepstorff–Araki–Sewell condition, 47

- short-range correlations, 49
- spin
 - operators, 3
 - rotations, 5
- spontaneous magnetisation, 9
- state
 - cluster point, 39
 - decomposition, 51
 - finite volume, 33
 - infinite volume, 38
 - mixed, 34
 - pure, 34
 - tangent functional, 41
- support of local observable, 7
- symmetrisation operator, 16

- tensor product, 6
- Trotter formula, 83

- van Hove sequence, 40