

Symbols

Symbols for physical quantities

A	quantized vector potential
\mathbf{A}	vector potential
\mathcal{A}	action
$A_t(x)$	fluctuating vector potential
$A_{\parallel}, A_{\perp}, E_{\parallel}, E_{\perp}$	longitudinal, transverse fields
\mathbf{B}	magnetic field
\mathbf{E}	electric field
\mathcal{E}	total energy
$E(p)$	energy–momentum relation
$E^0, \mathbf{B}^0, \mathbf{q}^0, v^0$	initial conditions
E_s	soliton energy
E_{bin}	binding energy
$\mathbf{E}_{\text{ex}}, \mathbf{B}_{\text{ex}}$	external fields
$\mathbf{E}_{\text{ini}}, \mathbf{B}_{\text{ini}}$	initial fields
$\mathbf{E}_{\text{out}}, \mathbf{B}_{\text{out}}$	outgoing fields
$\mathbf{E}_{\text{ret}}, \mathbf{B}_{\text{ret}}$	retarded fields
$\mathbf{E}_{\text{sc}}, \mathbf{B}_{\text{sc}}$	scattered fields
E_{self}	self-energy
$\mathbf{E}_v, \mathbf{B}_v$	soliton fields
\mathbf{F}	electromagnetic field tensor
F	force
H	Hamiltonian
H_f	field Hamiltonian
$H_p, H(p)$	Hamiltonian at fixed total momentum p
H_{sp}	spin Hamiltonian
I_b, I_f	moment of inertia

J	total angular momentum
J_f	field angular momentum
$L, L_{\text{at}}, L_f, L_{\text{int}}$	Liouvillean
L, \mathcal{L}	Lagrangian
L_D	Davies generator
M_e	electric moment
M_m	magnetic moment
N	number of particles
N	torque
\mathcal{P}	total momentum
P_s	soliton momentum
P_f	field momentum
\mathcal{P}_f, P_f	field momentum
S	soliton manifold
T	temperature
V_{coul}	Coulomb potential
V_{dar}	Darwin potential
Z	partition function, nucleon charge
a^*, a	creation, annihilation operators
c	velocity of light
$e\varphi$	charge distribution
e	electric charge
e_λ	polarization vectors
\mathbf{f}	Minkowski force
f_α	distribution function
g	g -factor
$g_{\mu\nu}$	metric tensor
\hbar	Planck's constant
\mathbf{j}	current density
\mathbf{j}	four-current
\mathbf{k}	momentum
k_B	Boltzmann's constant
m	mass
m_b	bare mass
m_f	field mass
m_g	gyrational mass
m_{eff}	effective mass
\hat{n}	unit vector
\mathbf{p}	four-momentum

p, \mathbf{p}, P	momentum
q, \mathbf{q}	position
$\mathbf{q}(\tau)$	world line
\mathbf{r}	position
r_B	Bohr radius
\mathbf{s}	spin angular momentum
\mathbf{t}	Minkowski torque
t	time
\mathbf{u}	four-velocity
u, \mathbf{u}	velocity
v, \mathbf{v}	velocity
\mathbf{x}	four-space vector
x, \mathbf{x}	space
Δ	Laplacian
Λ	ultraviolet cutoff
Ω	four-gyration
Ω^\pm	wave operator
α	fine structure constant
β	inverse temperature
γ	relativistic velocity factor
δ^\perp	transverse delta function
λ_c	Compton wavelength
μ	magnetic moment
ρ	charge distribution
ρ	density matrix
σ	Pauli spin matrices
τ	eigentime
ϕ	electrostatic potential
ϕ, π	scalar field, scalar momentum field
$\phi_{\text{ex}}, A_{\text{ex}}$	external potentials
$\widehat{\phi}$	form factor
ψ	wave function
ψ_g	ground state wave function
ω	angular velocity
ω_c	cyclotron frequency
ω_s	spin precession frequency
ω	free-field dispersion relation
ω_β	KMS state
$\widehat{\omega}$	unit vector

Mathematical symbols

$A(q, p)$	operator-valued function
$B(\mathcal{H})$	bounded operators on \mathcal{H}
$C, C(\mathbb{R}, \mathbb{R}^d)$	continuous functions on \mathbb{R} with values in \mathbb{R}^d
C^∞	infinitely often differentiable functions
C^k	k times differentiable functions
\mathbb{C}	complex numbers
$D(\cdot, \cdot)$	Dirichlet form
$D(A)$	domain of operator A
\mathbb{E}	expectation
\mathcal{F}	Fock space
\mathcal{H}_f	field Hilbert space
\mathcal{H}_p	particle Hilbert space
$L^2, L^2(\mathbb{R}^3, d^3x)$	Hilbert space of square-integrable functions on \mathbb{R}^3
\mathcal{M}_N	algebra of $N \times N$ matrices
\mathbb{N}	positive integer numbers
\mathbb{P}	probability measure
\mathbb{R}	real numbers
$\text{Ran } A$	range of operator A
$\mathcal{T}_1(\mathcal{H})$	trace class operators on \mathcal{H}
$\mathcal{T}_2(\mathcal{H})$	Hilbert–Schmidt operators on \mathcal{H}
\mathcal{W}_ε	Weyl quantization
\mathbb{Z}	integer numbers
$d(\cdot, \cdot)$	metric
\widehat{f}	Fourier transform of f
ℓ, r	left, right representation
tr	trace
Ω	Fock vacuum
$\sigma(H)$	spectrum of operator H
$\ \cdot\ $	Hilbert space norm
$\ \cdot\ _1$	L^1 -norm
$\ \cdot\ _\infty$	L^∞ -norm
$\ \cdot\ _R$	local energy norm
$\langle \cdot, \cdot \rangle_{\mathcal{H}}$	Hilbert space scalar product
$\langle \cdot \cdot \rangle$	scalar product for Hilbert–Schmidt operators
$::$	normal order, Wick order
$\{\cdot, \cdot\}$	Poisson bracket
$[\cdot, \cdot]$	commutator
$\int dq_s$	stochastic integration
\sharp	Moyal product
∇	nabla operator