List of Symbols

Symbol	*Description*
$C_{1,2}$	Constants
d	Dimensionality of the system
ε	Permittivity
ε_{XC}	Exchange correlation energy density
E_T	Applied electric field
E	Electronic energy
f	Dirac-Fermi distribution function
G_o	Quantum conductance
G	Retarded Green's function
$G^{\dagger}$	Advanced Green's function
$g_{L,R}$	Green's function for normal contact
$\hbar$	Reduced Plank's Constant
H_T	Total Hamiltonian of many particle system
H_e	Hamiltonian due to electron-electron interaction
H_n	Hamiltonian due to nuclei-nuclei interaction
H_{en}	Hamiltonian due to electron-nuclei interaction
I	Current
k	Decay constant
k_B	Boltzmann's constant
m	Mass of electron
M	Mass of nuclei
N_{eff}	Effective density of states
N_D	Density of empty localized states
$N(r)$	Electron density of many particle system
Φ_B	Voltage barrier in absence of applied electric field
Φ_{eff}	Effective potential barrier due to Schottky effect
ψ	Wave function
ρ	Local density of states of system
p_i	Momentum of i^{th} electron
p_I	Momentum of i^{th} nuclei
q	Electronic charge
$\Sigma_{L,R}$	Self-energies
$\Gamma_{L,R}$	Coupling function at left and right electrodes
T	Temperature
$T(z)$	Transmission coefficient as function of dimensionality of the system
τ	Residual time
$\tau_{L,R}$	Periodicity of contacts
μ	Current mobility
U	Potential barrier
V	Voltage
$V_n(r)$	Potential due to all nuclei in the system and external biasing
V_C	Potential due to coulombic interaction of Hartree potential
V_{XC}	Potential due to exchange correlation functional
z	Dimensionality of the system