LIST OF MAIN SYMBOLS

x, y, z -Cartesian coordinates
r,φ, z -cylindrical coordinates
t-time
ω - frequency
$\vec{k}$ - wave vector
R_1, R_2 - main radii of surface curvature
$\vec{n}$ - external normal vector to a surface
ρ - density
P - pressure
T - temperature
$\vec{v}$ - velocity
$\vec{q}$ -specific heat flux
$\vec{H}$ - magnetic field intensity
$\vec{B}$ - magnetic field induction
$\vec{M}$-magnetization (magnetic moment of unit volume of the medium)
μ_0-magnetic permeability of vacuum
χ - magnetic susceptibility ($\vec{M} = \chi\vec{H}$)
μ - magnetic permeability of medium ($\mu = \mu_0(1+\chi)$)
η - dynamic viscosity coefficient
ν - kinematic viscosity coefficient ($\nu = \eta/\rho$)
C - heat capacity
λ - thermal conductivity
κ - thermal diffusivity ($\kappa = \lambda/\rho C$)
σ - surface tension coefficient
k - Boltzmann's constant
$\vec{g}$ - gravity acceleration
$\beta_\rho = -(1/\rho)(\partial\rho/\partial T)$ - relative temperature density coefficent
$\beta_M = -dM/dT$ - absolute temperature magnetization coefficient
$\beta_\sigma = -d\sigma/dT$ - absolute temperature surface tension coefficient
l - characteristic dimension
$\vec{G}$ - characteristic gradient of magnetic field intensity
$\vec{\gamma}$ - characteristic temperature gradient
δ_{ik} -Kronecker symbol
ε_{ikl} - Levi-Civita symbol

DIMENSIONLESS NUMBERS

$\mathrm{Re} = vl/\nu$ - Reynolds number
$\mathrm{We} = \rho v^2 l/\sigma$ - Weber number
$\mathrm{Bo} = \rho g l^2/\sigma$ - Bond number
$\mathrm{Bo}_m = \mu_0 M G l^2/\sigma$ - magnetic Bond number
$\mathrm{Gr} = \beta_\rho g \gamma l^4/\nu^2$ - Grashof number
$\mathrm{Gr}_m = \mu_0 \beta_m G \gamma l^4/\rho\nu^2$ - magnetic Grashof number
$\mathrm{Pr} = \nu/\kappa$ - Prandtl number
$\mathrm{Ra} = \mathrm{GrPr}$ - Rayleigh number

$\mathrm{Ma} = \beta_\sigma \gamma l^2/\eta\kappa$ - Marangoni number
$\mathrm{Pe} = \mathrm{RePr}$ - Peclet number
$\mathrm{Nu} = ql/\lambda\Delta T$ - Nusselt number

$$\left.\begin{array}{l} \mathrm{S} = \mu_0 M^2 l/\sigma \\ \mathrm{Si} = \mu_0 M^2/\sqrt{\rho g \sigma} = \mathrm{S}/\sqrt{\mathrm{Bo}} \end{array}\right\} \quad - \text{magnetic fluid interface numbers}$$

NOTATION OF TRIGONOMETRIC FUNCTIONS

sin-(sine)
cosin-(cosine)
tg-tan-(tangent)
ctg-cotan-(cotangent)
sh-sinh-(hyperbolic sine)
ch-cosh-(hyperbolic cosine)
th-tanh-(hyperbolic tangent)
cth-coth-(hyperbolic cotangent)