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LIST OF SYMBOLS

\vec{u} = Displacement vector

u_i = Components of displacement vector

e_{ij} = Components of strain tensor

e_{ii} = Dilatation

σ_{ij} = Stress tensor

θ = Temperature above the reference temperature

T_0 = Reference temperature

b_i = Components of the body force vector

\vec{q} = Heat flux vector

q_i = Components of heat flux vector

Q = Heat source

ρ = Mass density of the material

K = Thermal conductivity of the material

K^* = Rate of thermal conductivity of the material

C_e = Specific heat at constant strain

C_v = Specific heat at constant volume

λ, μ = Lamé's elastic constants

α_t = Coefficient of linear thermal expansion

τ_q = Phase-lag of heat flux vector

τ_t = Phase-lag of temperature gradient

δ_{ij} = Kronecker delta

$\delta(\cdot)$ = Dirac delta function

$\vec{\nabla}$ = Gradient operator

∇^2 = Laplacian operator

μ_e =Magnetic permeability

σ =Electrical conductivity

ϵ_θ =Thermoelastic coupling constant

ϵ_H =Magneto-thermoelastic coupling constant

Throughout the thesis: the subscripted comma notations are used to represent the partial derivatives with respect to the space variables. The over-headed dots denote partial derivatives with respect to time variable, t . Subscripts i, j, k take the values 1, 2, 3 and summation is implied by index repetition.