

Abstract Submitted
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Relativistic Navier-Stokes Equation, (Navier-Stokes Equation with Estakhr's Correction) AHMAD REZA ESTAKHR¹, Researcher — At relativistic speeds Navier-Stokes equation is incorrect unless Estakhr's correction is included. this equation relates energy flux as vector at relativistic speeds. $(-1/c^2) \frac{\partial \mathbf{q}}{\partial t}$, at low speeds Estakhr's relativistic correction vanishes. $\rho \gamma^3 \left(\frac{D\mathbf{v}}{Dt} + \mathbf{v} \cdot \nabla \mathbf{v} \right) = -\nabla p + \nabla \cdot \mathbf{T} - \frac{1}{c^2} \frac{\partial \mathbf{q}}{\partial t} + \mathbf{f}$, where \mathbf{v} is the flow velocity, ρ is the fluid density, p is the pressure, \mathbf{T} is the (deviatoric) component of the total stress tensor, which has order two, \mathbf{f} represents body forces (per unit volume) acting on the fluid, ∇ is the del operator, γ is the lorentz factor.

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