1135-76-251 **Shigeru Masuda*** (hj9s-msd@asahi-net.or.jp), Room #305, Heights Esperanza, 100-24, Nishida-Chou, Joudoji, Sakyo-Ku, Kyoto, 606-8417, Japan. *Poisson's hydrodynamics and hydrostatics.*

We discuss Poisson's hydrodynamics and hydrostatics in "A Study of Mathematical Physics." Poisson proposes his academic paradigm of mathematical physics.

Poisson issues previously, the original of the Navier-Stokes equations in the paper 1829, which he doesn't include in "A study ." That is as follows :

$$\begin{cases} \rho(X - \frac{d^2x}{dt^2}) = \frac{d\varpi}{dx} + \beta(\frac{d^2u}{dx^2} + \frac{d^2u}{dy^2} + \frac{d^2u}{dz^2}), \\ \rho(Y - \frac{d^2y}{dt^2}) = \frac{d\varpi}{dy} + \beta(\frac{d^2v}{dx^2} + \frac{d^2v}{dy^2} + \frac{d^2v}{dz^2}), \\ \rho(Z - \frac{d^2z}{dt^2}) = \frac{d\varpi}{dz} + \beta(\frac{d^2w}{dx^2} + \frac{d^2w}{dy^2} + \frac{d^2w}{dz^2}), \end{cases}$$

where, $\varpi = p + \frac{\alpha}{3}(K + k)(\frac{du}{dx} + \frac{dv}{dy} + \frac{dw}{dz})$.

We follow two topics.

•Conformation of the original of the Navier-Stokes equations. We discuss the original by Navier, Poisson and Stokes.

•Conjecture of defective proofs on the exact differential. Poisson conjects the defective demonstration of exact differential on the eternity in time-space, which Lagrange 1781's and Cauchy's 1815 propose. After Poisson's death, Stokes proposes his new demonstration in 1849. (Received August 22, 2017)