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Shigeru Masuda* (hj9s-msd@asahi-net.or.jp), 56-5-202 Yoshida-Izumidono-chou, Sakyo-ku, Kyoto, 6068301, Japan. *Fourier's Equations of Heat Motion in Fluid and Boltzmann's Transport Equations.*

Our motivation owes to our interest in the mathematical physics in classical fluid dynamics including the heat theory. Owing to the arrival of continuum theory, many works of mathematical physics are introduced, such as heat theory and heat diffusion equations and communication theory that are based on the continuum. In the current of formularizing process of the fluid dynamics, Euler, Navier, Poisson, Cauchy and Stokes struggle to deduce the wave equations and fluid dynamics equations. Fourier connects the heat communication theory with the Euler's equations of incompressible fluid dynamics and proposes the equation of heat motion in fluid, which sheds a light on fluid-thermodynamics. Sir W. Thomson stands by the British academy to introduce Fourier's theories. The gas theorists like Maxwell, Boltzmann construct thermodynamics equations based on the concept of molecular collision, hinted by Fourier's communication theory and heat equations of motion in fluid. Especially, Boltzmann brings the concepts of entropy and probability of molecule in his transport equations. Schrödinger pays attention to the eigenvalue problem hinted by Kepler problems and makes his equations. We document contributions of classical mechanics to quantum mechanics. (Received September 17, 2013)