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Shigeru Masuda* (hj9s-msd@asahi-net.or.jp). *The Motion Equations and Theories of Heat by Fourier and Poisson*. Preliminary report.

We discuss historical development of classical heat theory from the viewpoint of mathematical physics, in particular, of Fourier and Poisson. After the arrival of concept of continuum, the new mathematics is put forth in pure mathematics but also in mathematical physics, and in the theory of heat communication, which is the then conventional object of heat study.

Poisson issues the papers on theory of heat : Poisson 1823 and the last book 1835 in rivalry to Fourier 1822, in which Poisson discusses the essential theories emphasizing his hypothesis of molecular emission and absorption of heat and which dues to the Newton's law, and basing on an impregnable belief of mathematical science.

However, Fourier's equation is only the first half part of the general expression by Poisson and according to Poisson, Fourier's style is a particular case. We think, Poisson's method comes from the fluid dynamics and the wave theory in which he introduces an origin of the Navier-Stokes equations and wave equations. Heat theory produces more fruitful harvest than fluid dynamics in the mathematical history, for its easiness of linearity than the latter. (Received August 11, 2016)