Notes on Fluid-Dynamic-Type Equations Derived from the Boltzmann Equation

Yoshio Sone*

Institute of Mathematics, Academia Sinica, Taipei, Taiwan, ROC

For small Knudsen numbers or in the limit of vanishing Knudsen number, various sets of fluid-dynamic-type equations are derived from the Boltzmann equation, depending on the situation under consideration.[1−4] In the series of talks, we discuss these sets of equations. In this talk, some notes are given about compressibility or incompressibility because the term "incompressible" is often used when the density is varying along the fluid-particle path (or when the gas is compressed).

References

[1] Y. Sone, *Kinetic Theory and Fluid Dynamics* (Birkhäuser, Boston, 2002).

[2] Y. Sone, *Molecular Gas Dynamics* (Birkhäuser, Boston, 2007).

[3] Y. Sone, *Supplement to Kinetic Theory and Fluid Dynamics–Yoshio Sone (Birkhäuser, Boston, 2002)* (Kyoto University Research Information Repository, http://hdl.handle.net/2433/66099, 2008).

[4] Y. Sone, *Supplement to Molecular Gas Dynamics–Yoshio Sone (Birkhäuser, Boston, 2007)* (Kyoto University Research Information Repository, http://hdl.handle.net/2433/66098, 2008).

*Permanent address: 230-133 Iwakura-Nagatani-cho, Sakyo-ku, Kyoto 606-0026, Japan