Nonlinear evolution of solar wind Alfven waves: An empirical model of the ion kinetic effect

*成行 泰裕[1]
*Yasuhiro Nariyuki[1]

1. 富山大学人間発達科学部
1. Faculty of Human Development, University of Toyama

It is well know that solar wind plasma is usually at the thermally non-equilibrium state. Kinetic effects due to collisionless damping also cause the deviation from the fluid description, in which the local equilibrium states are assumed. In this presentation, we discuss an empirical model of the thermodynamic property of the solar wind plasma with non-constant heat capacity of the semi-ideal gas. Analytical and numerical models (the derivative nonlinear Schrodinger equation and the triple-degenerated derivative nonlinear Schrodinger equation) including the ion kinetic effect are used to evaluate the empirical relationship between the plasma density and the magnetic pressure.

キーワード：太陽風、アルヴェン波、太陽風プラズマの熱力学的性質
Keywords: solar wind, Alfven waves, Thermodynamic property of solar wind plasma

