Laser-induced breakdown spectroscopy (LIBS) is an analytical detection technique based on atomic emission spectroscopy to measure the elemental composition, which has been widely applied in various fields. A new collinear long and short DP-LIBS method (LS-DP-LIBS) was proposed to improve the detection ability and measurement accuracy by the control of the plasma cooling process using the long pulse-width laser radiation. Tunable diode laser absorption spectroscopy (TDLAS) has been widely developed for practical applications. The fast response 2D/3D temperature and concentration distribution measurement method has been developed and applied to various flow fields. The technique is based on a CT method using absorption spectra of molecules such as H2O.