Date: September 21st

Time: 11:00 AM

Location: Maryland Hall 110

Speaker: Dr. Han Seo Ko

Sungkyunkwan University

Title: *"Analysis of Three-Dimensional Density Distributions for Unsteady Flow Using Visualization Technique"*

Abstract

Velocity and density distributions of a high-speed and starting jet flow have been analyzed simultaneously by a developed three-dimensional digital speckle tomography and a particle image velocimetry (PIV). Two high-speed cameras have been used for the tomography and one for the PIV since a shape of a nozzle for the jet flow is not axi-symmetric and the starting flow is fast and unsteady. The speckle movements between no flow and CO2 jet flow have been obtained by a cross-correlation tracking method so that those distances can be transferred to deflection angles of laser rays for density gradients. The three-dimensional density fields for the high-speed CO2 jet flow have been reconstructed from the deflection angles by the real-time tomography method, and the two-dimensional velocity fields have been calculated by the PIV method simultaneously and instantaneously.