Simultaneous measurement of velocity and temperature fluctuations in 2D mixing layer via the thermochromism

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Velocity and temperature fluctuations in the 2D mixing layer of an aqueous solution of cobalt–chloride and sodium-chloride were measured simultaneously by the use of a Laser-Doppler velocimeter (LDV). Owing to the thermochromism of the solution, the intensity of transmitted Laser light of LDV gave the information on temperature. It was shown that the temperature fluctuation and temperature-velocity correlation can be measured by this method. Advantages and disadvantages of this method are discussed.

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