

Abstract Submitted  
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**Study on Coherent Structure of Turbulent Thermal Convection  
by Simultaneous Measurement of Temperature and Velocity by Liquid  
Crystal Tracers** NOBUYUKI FUJISAWA, MASATAKA WATANABE, YUJI

HASHIZUME, Niigata University — In order to understand the formation and the development of the plume structure in turbulent thermal convection, the temporal and spatial variations of temperature and velocity field are measured in the non-penetrative thermal convection of the horizontal fluid layer using the combined liquid crystal thermometry and stereo-velocimetry. It is found that the spoke structure is generated near the heated surface and moves along the heated surface unsteadily changing the cell size. The thermal plume is generated from the high temperature region of the spoke structure, where the vertical velocity component is clearly observed near the heated surfaces.

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