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Unstable turbulence diffusion of reacting jet SATOSHI SOMEYA, Univ. of Tokyo, TAKAHIDE TABATA, MASAHIRO NAKASHIMA, KNCT, KOJI OKAMOTO, Univ. of Tokyo — A basic characteristics of a chemically reactive jet flow, an influence of chemical reaction on a development of turbulence, is rudimentarily investigated. The chemical reaction may affect the interfacial stability of turbulent jet while the turbulence enhances the chemical reaction. The development of turbulence was experimentally investigated using LIF-PIV technique in this study. In this paper, we selected a simple irreversible chemical reaction, i.e., the reaction between ammonia solution and acetic acid solution, which generates ammonia acetic acid solution. It is an exoergic reaction with negligible small reacting heat. NaCl solution was also used in order to investigate the effect of difference of densities. At first, a behavior of the jet diffusion, i.e., the interface stability, was investigated using images of the mixing dye. The transition point, which relates to the interface stability, was clearly visualized. With the chemical reaction, the transition point moved more downstream than that without the chemical reaction. The interface in the reacting condition was more stable than that in the non-reacting condition.

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