



Fire whirl

A fire whirl is generated by the interaction between a lateral flow and a buoyant upward flow from a fire. Once a fire whirl is generated, the burning rate increases, signifying the damage.



Surface flash

Fast flame spread over the surface of a napped fabric is called surface flash. When surface flash occurs, the flame spread velocity increases 10-100 times.



Content:

Effective safety management

The advance and diversification of recent technologies might cause accidents that have never experienced before. To prevent such accidents, it is important to assess the risk level of each material or operation and to take measures to reduce the risk level if it is too high to be accepted. Scientific understanding of phenomena associated with potential accidents is essential for accurate risk assessment.

Science of fire & explosion

Fires and explosions have caused and are still causing serious damages to the society. The goal of our research is to establish a reliable method to assess the damages and consequences of each potential fire or explosion scenario. In particular, phenomena that may significantly increase the damage of a fire or explosion, such as fire whirl, surface flash, and large-scale explosion, are studied through scale-model experiments, numerical simulations, and theoretical analyses.

Yamagata University Graduate School of Science and Engineering

Research Interest : Combustion, Safety engineering

E-mail : kuwana@yz.yamagata-u.ac.jp

Tel : +81-238-26-3167

Fax : +81-238-26-3414

HP : <http://chemistry.yz.yamagata-u.ac.jp>

