

52nd IAA SYMPOSIUM ON SAFETY, QUALITY AND KNOWLEDGE MANAGEMENT IN SPACE  
ACTIVITIES (D5)Interactive Presentations - 52nd IAA SYMPOSIUM ON SAFETY, QUALITY AND KNOWLEDGE  
MANAGEMENT IN SPACE ACTIVITIES (IP)

Author: Mr. Vinayak Malhotra  
SRM University Chennai, India

Ms. Pritha Pal  
SRM University, kattankulathur, chennai, INDIA, India  
Ms. Sneha Gayen  
SRM University, kattankulathur, chennai, INDIA, India  
Mr. Prayas Bhawalkar  
SRM University, kattankulathur, chennai, INDIA, India

## SELF INDUCED FIRE PROPAGATION IN AN ARRAY OF HEAT SOURCES.

**Abstract**

Scholars and scientists have been trying to find ways to control and alleviate the consequences of concurrent fires such as forest fires, building fires and various space fires but no compelling solutions have been concluded from their studies so far. The basic cause of these kind of fires concerns with the unstable nature of the flames and marked unpredictability associated with it. For example, the breakout of one of the deadliest wildfires in California in 2018 shows us the gravity of the situation and also the immediate requirement to control such mishaps to save life and properties valuable to us. This led us to make an attempt to study the behavior of such flames – an experimental setup with rather ideal conditions was devised and a thorough study was carried out. This present study mainly concerns with the study of fire propagation phenomena and the vitality of fire control in our daily life. This study involves the review of the varying regression rates and fire spread rates of flames as observed in matchsticks when spaced in both linear and non-linear orientation. The behavioral instability of the flames will give us an insight into the heterogeneous fire propagation phenomenon and its control. An insight into the heterogeneous fire propagation is expected for essential fire safety and, on its basis, an algorithm for the same is to be formulated. With this knowledge along with the existing information, it might give us some possible solution to the reduction of such kind of fires in forests, buildings, large scale fires in industries, space propulsion systems.