Stability and breakup of transient jets

I. Sher*

* School of Engineering
Cranfield University
Cranfield, Bedfordshire MK43 0AL
United Kingdom

Abstract

The problem of hydrodynamic instability and breakup of a transient jet is considered. Transient jets are prevalent in many fuel injection applications, where injection is generally not continuous.

A hydrodynamic stability modelling shows that acceleration/deceleration may have a non-negligible effect on jet stability conditions. A simple model is presented that captures this effect. Results and applicability are discussed. Incorporation into the model of additional transient and non-uniform effects, affecting jet stability, is discussed.

* Corresponding author: i.sher@cranfield.ac.uk