

# <sup>1</sup> A PHENOMENOLOGICAL MODEL OF TWO-PHASE (AIR/FUEL) DROPLET OF CUMMINS SPRAY

*Radomir R. Pavlović, Faculty of Mechanical Engineerin, Kragujevac, Serbia*

UDC: 621.436.21

## **Abstract**

Effervescent atomization namely the air-filled liquid atomization comprehends certain complex two-phase phenomenon that are difficult to be modeled. Just a few researchers have found the mathematical expressions for description of the complex atomization model of the two-phase air/diesel fuel mixture. In the following review, developing model of two-phase (air/fuel) droplet of Cummins spray pump-injector is shown. The assumption of the same diameters of the droplet and the opening of the atomizer is made, while the air/fuel mass ratio inside the droplet varies.

**Key words:** effervescent atomization, two-phase, droplet, diesel injector.

## **FENOMENOLOŠKI MODEL DVOFAZNE (VAZDUH/VODA) KAPLJICE CUMMINS-OVOG MLAZA**

UDC: 621.436.21

**Rezime:** Penušavo raspršivanje, odnosno raspršivanje tečnosti ispunjeno vazduhom sadrži neke složene dvofazne fenomene koje je teško modelirati. Samo nekolicina istraživača otkrila je matematičke izraze za opis složenog modela raspršivanja dvofazne mešavine vazduha i dizel goriva. U ovom pregledu, prikazan je razvoj modela dvofazne (vazduh/gorivo) kapljice iz Cummins-ove pumpe-brizgaljke. Uvedena je pretpostavka o istim prečnicima kapljice i otvora raspršivača, pri promenljivom masenom odnosu vazduh/gorivo unutar kapljice.

**Ključne reči:** penušavo raspršivanje, dvofazni, kapljica, dizel brizgaljka.

---

<sup>1</sup> Received: October 2010.  
Accepted: December 2010.

Primljen: oktobar, 2010.god.  
Prihvaćen: decembar, 2010.god.