

Accepted Manuscript

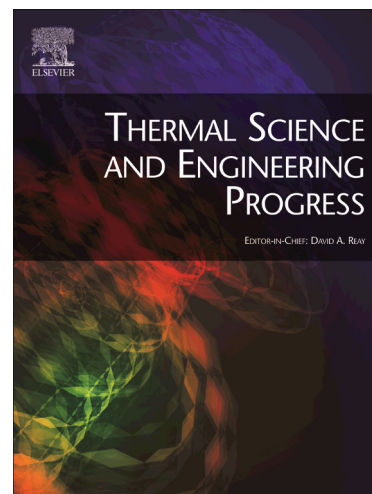
Constant Velocity Combustion Scramjet Cycle Analysis for Non-Ideal Mass Flow Rate

Jeffrey Roux, Lakshmi Tiruveedula

PII: S2451-9049(16)30018-X
DOI: <http://dx.doi.org/10.1016/j.tsep.2017.03.003>
Reference: TSEP 11

To appear in: *Thermal Science and Engineering Progress*

Received Date: 16 December 2016
Accepted Date: 18 March 2017



Please cite this article as: J. Roux, L. Tiruveedula, Constant Velocity Combustion Scramjet Cycle Analysis for Non-Ideal Mass Flow Rate, *Thermal Science and Engineering Progress* (2017), doi: <http://dx.doi.org/10.1016/j.tsep.2017.03.003>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Constant Velocity Combustion Scramjet Cycle Analysis for Non-Ideal Mass Flow Rate

Jeffrey Roux^a and Lakshmi Tiruveedula^b

225 Carrier Hall

University of Mississippi, University, MS 38677

Nomenclature

A = area, cm^2

A_2 = diffuser (engine inlet) exit area, cm^2 ; combustor entrance area

A_4 = combustor exit area, cm^2

A^*/A = throat area to combustor area ratio, [Eq. (41)]

A^* = throat area, cm^2

a_o = freestream speed of sound, m/s

a_9 = speed of sound at nozzle exit, m/s

B = defined in Eq. (10b)

C = defined in Eq. (14)

c_p = specific heat at constant pressure, $\text{kJ}/(\text{kg}\cdot\text{K})$

F = thrust, N

$F/\dot{m}_o$ = specific thrust, $\text{N}/(\text{kg}/\text{s})$

F/A_2 = thrust flux, N/cm^2

f = mass based fuel-to-air ratio

^a Professor, Department of Mechanical Engineering, corresponding author: meroux@olemiss.edu

^b Graduate Student, Department of Mechanical Engineering

Download English Version:

<https://daneshyari.com/en/article/8918894>

Download Persian Version:

<https://daneshyari.com/article/8918894>

[Daneshyari.com](https://daneshyari.com)