

Homogeneous ignition for a three-step chain-branching reaction model

P. A. Blythe · A. K. Kapila · M. Short

Published online: 3 August 2007
© Springer Science+Business Media B.V. 2007

Erratum to: J Eng Math (2006) 56:105–128
DOI 10.1007/s10665-006-9055-0

Dotted and dash-dotted lines from figures 1–3 in this article were inadvertently erased. The corrected figures appear below.

The online version of the original article can be found under doi: 10.1007/s10665-006-9055-0

P. A. Blythe
Department of Mechanical Engineering & Mechanics, Lehigh University,
Bethlehem, PA 18015, USA

A. K. Kapila (✉)
Rensselaer Polytechnic Institute, Troy, New York 12180, USA
e-mail: kapila@rpi.edu

M. Short
Department of Theoretical and Applied Mechanics, University of Illinois,
Urbana, IL 61801, USA

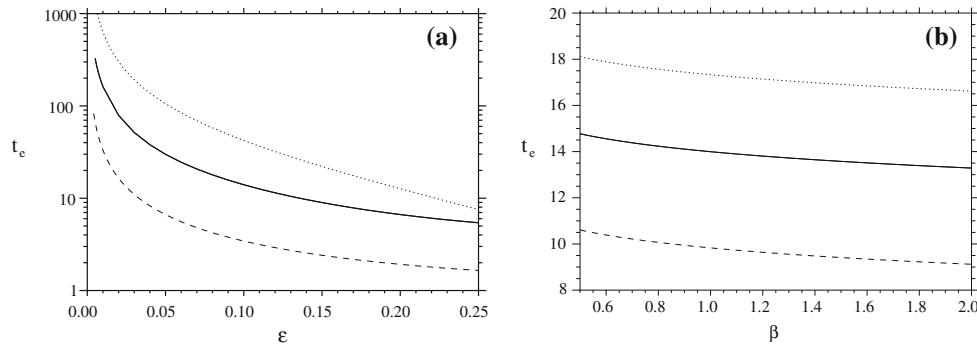


Fig. 1 (a) Variation of time scale for the onset of termination (a) with ϵ for $m = 2.5$, $T_i = 3$, $\beta = 1$ and $A = O(1)$, with $A = 5$ (dashed line), $A = 1$ (solid line) and $A = 0.25$ (dotted line); (b) with β , for $A = 1$, $\epsilon = 0.1$, $m = 2.5$ and for $T_i = 2$ (dashed line), $T_i = 3$ (solid line), $T_i = 5$ (dotted line)

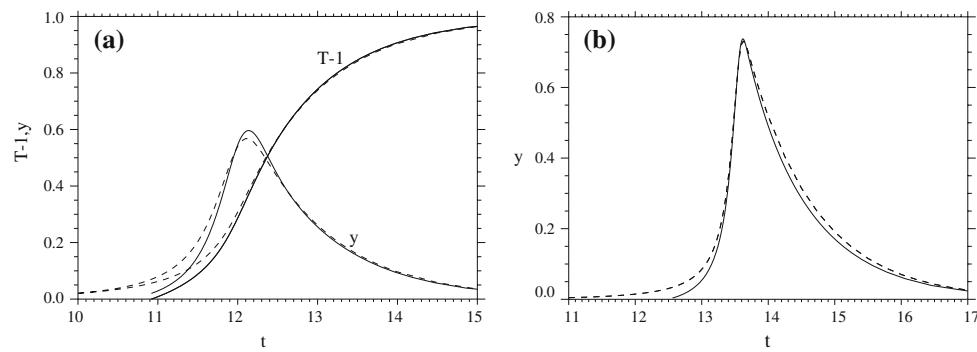


Fig. 2 (a) Comparison with exact (dashed lines) and asymptotic outer composite (solid lines) solutions for $A = O(1)$, for $T_b = 0.925$, $T_i = 3$, $\beta = 1$, $\epsilon = 0.125$ and $m = 2.5$. (b) Comparison with exact (dashed lines) and asymptotic outer composite (solid lines) solutions for $A = O(1)$ for y for $T_b = 0.96$, $T_i = 3$, $\beta = 1$, $\epsilon = 1/16$ and $m = 1.5$

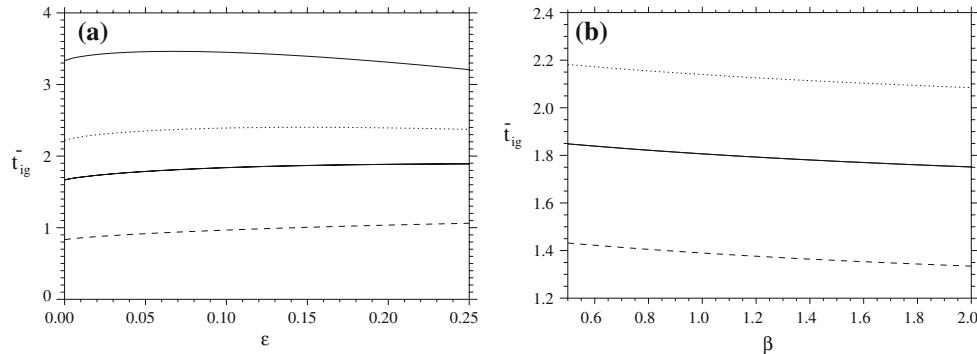


Fig. 3 (a) Ignition time \bar{t}_{ig} as a function of ϵ for $a = O(1)$ with $m = 2.5$, $T_i = 3$ and $\beta = 0.6$ with $a = 2$ (dashed line), $a = 1$ (solid line), $a = 0.75$ (dotted line) and $a = 0.5$ (dot-dash line). (b) Ignition times \bar{t}_{ig} as a function of β for $a = 1$, $\epsilon = 0.1$ and $m = 2.5$ for $T_i = 2$ (dashed line), $T_i = 3$ (solid line) and $T_i = 5$ (dotted line)