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Autoignition of hydrocarbon vapour: the Shell model for...

Forest fires: INTAS workshop, Russia, May 2006

Autoignition of Products of Pyrolysis of trees tops when heated by thermal radiation from Forest Fire flame front



Workshop INTAS – Siberian Branch
Of the Russian Academy of Sciences
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Mathematical modeling of forest fire initiation and spread

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Abstract: A mathematical model for description of heat and mass transfer processes at crown forest fire initiation and spread is developed. It is assumed that the forest can be modelled as a two-temperature multiphase non-deformable porous reactive medium during a forest fire.

The applicability of the Shell autoignition model to the description of ignition of gaseous products of pyrolysis of forest materials is explored. The Shell model accounts for the continuous chemical heat release prior to the ignition (including cool flames) while being less CPU intensive than detailed kinetic mechanisms (DKM) of autoignition.



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AUTOIGNITION OF *n*-PENTANE IN A RAPID COMPRESSION MACHINE: EXPERIMENT *versus* MODELLING

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