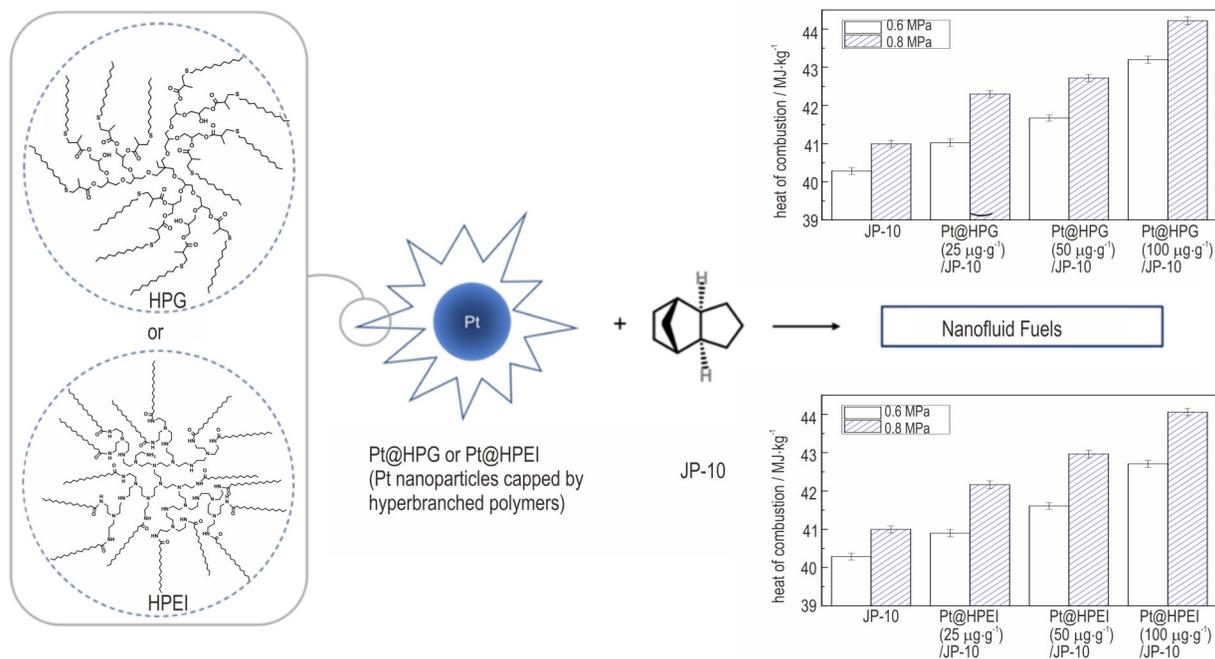


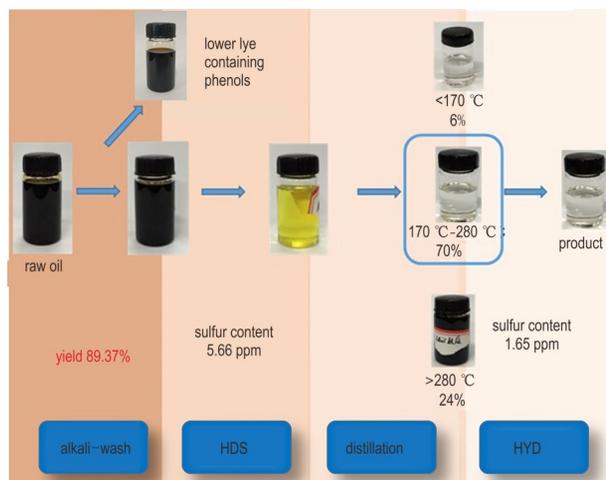
Preparation and Catalytic Combustion of JP-10 Based Pt Nanofluid Fuels Stabilized by Hyperbranched Polymer



WU Xi, HE Gui-jin, GUO Yong-sheng, FANG Wen-jun
Chinese Journal of Energetic Materials (Hanneng Cailiao),
 2020,28(5):369–375

The apparent combustion heat of JP-10 based Pt nanofluid fuels stabilized by hyperbranched polymer was increased in comparison with that of JP-10.

Process of Upgrading Direct Coal Liquefaction Oil to Aerospace Fuel



CAO Hong-wei, LI Yue-ting, WANG Teng-da, ZHANG Xiang-wen,
 LI Guo-zhu
Chinese Journal of Energetic Materials (Hanneng Cailiao),
 2020,28(5):376–381

Based on the properties of raw oil, the process of upgrading direct coal liquefaction oil to aerospace fuel has been studied. The optimum process conditions of hydrodesulfurization and hydrogenation saturation were obtained via experimental investigation. The as-prepared oil exhibited good performance for aerospace application.

Physicochemical and Rheological Properties of Al/JP-10 Gelled Fuel

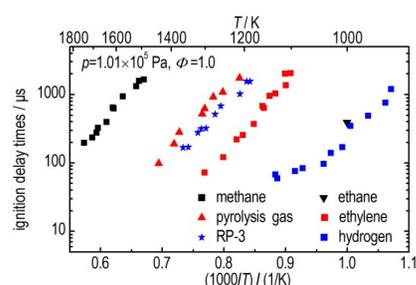
CAO Jin-wen, PAN Lun, ZHANG Xiang-wen, ZOU Ji-jun
Chinese Journal of Energetic Materials (Hanneng Cailiao),
 2020,28(5):382–390



Gelled Al/JP-10 fuels were synthesized using LMWG and aluminum nanoparticles. The basic physicochemical properties of gels such as density, viscosity, volumetric heat and physical stability were compared with pure JP-10. The effect of LMWG and Al on rheological properties of gels were investigated.

High Temperature Auto-ignition Delay Characteristics of Pyrolysis Gas of Aviation Kerosene

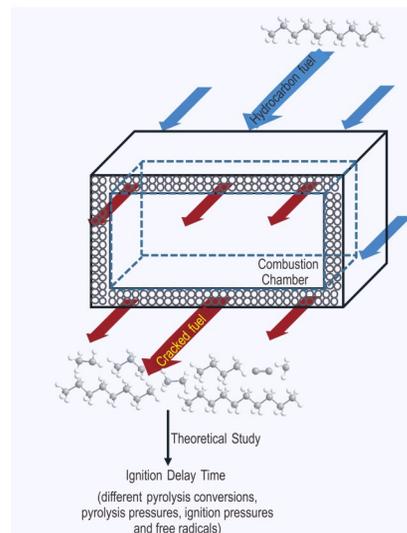
ZHENG Zu-jun, WANG Zhong-jun, LI Ping, ZHANG Chang-hua
Chinese Journal of Energetic Materials (Hanneng Cailiao),
 2020,28(5):391–397



Ignition delay times of RP-3 kerosene, pyrolysis gas, hydrogen, methane, ethylene and ethane at high temperature were measured in a shock tube. Comparative study was conducted to investigate the influence of pyrolysis on fuel auto-ignition.

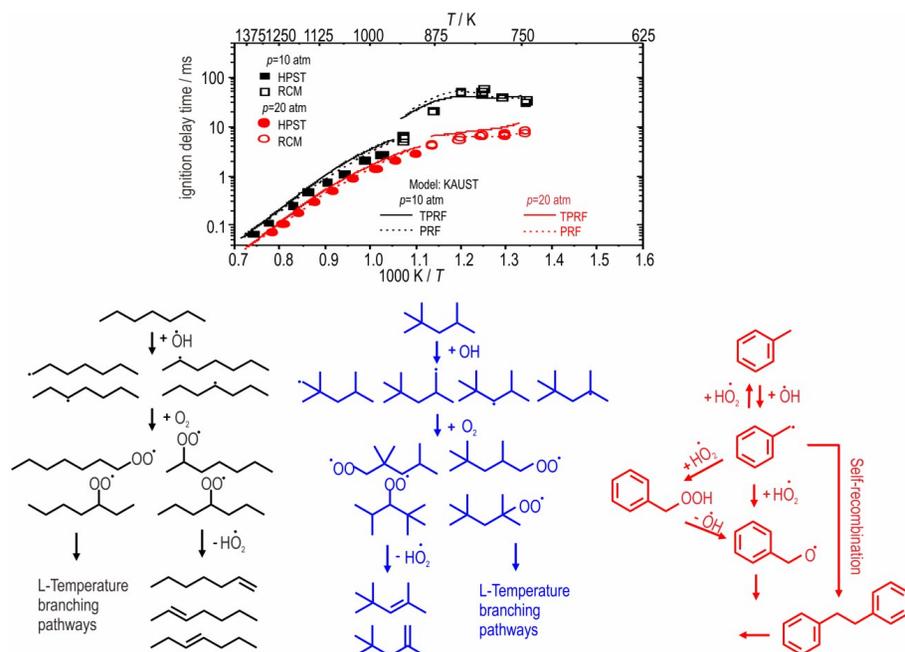
Theoretical Study on Ignition Delay Time of Thermally Cracked *n*-Decane

WANG Hong-yan, PEI Shan-shan, WANG Li, ZHANG Xiang-wen,
 LIU Guo-zhu
Chinese Journal of Energetic Materials (Hanneng Cailiao),
 2020,28(5):398–406



Endothermic hydrocarbon fuels undergo thermal cracking before entering the combustion chamber and can produce a mixture of unreacted fuels and pyrolysis products (i. e. cracked fuels). The objective of this work is to investigate the effects of pyrolysis conversions, pyrolysis pressures, ignition pressures and free radicals on ignition characteristics of cracked *n*-decane over a temperature of 1300–1800 K, pressure of 0.1–3.0 MPa and equivalence ratio of 1.0.

Auto-ignition Characteristics of Gasoline and Diesel Fuel Blends: A High-Pressure Ignition Delay and Kinetic Modeling Study

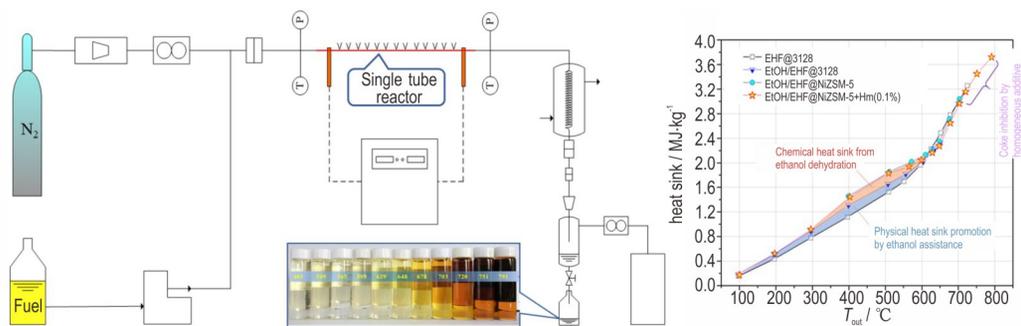


This study reported the ignition delay times (IDTs) of two different certified gasoline and diesel fuel blends, the measurements were performed in a shock tube and in a rapid compression machine at conditions relevant to internal combustion engine operation. Two different gasoline surrogates a primary reference fuel (PRF) and toluene PRF (TPRF) were formulated, and detailed chemical kinetic models were used for simulating the experimental data and analyzing the chemistry behind that.

LI Yang

Chinese Journal of Energetic Materials (Hanneng Cailiao),
2020,28(5):407–415

Ethanol-assisted Catalytic Endothermic Reaction of Hydrocarbon Fuel

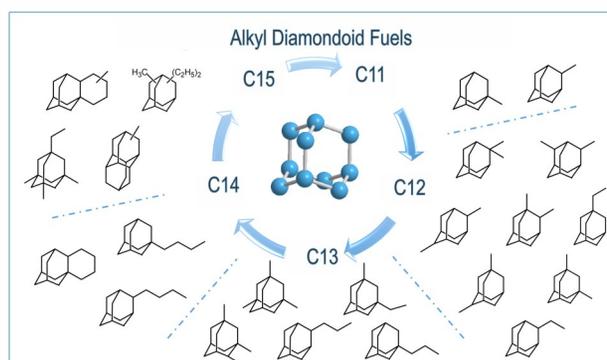


XU Guo-liang, CHEN Shuai, WU Chun-tian, TANG Nan-fang,
SHANG Qing-hao, CONG Yu

Chinese Journal of Energetic Materials (Hanneng Cailiao),
2020,28(5):416–423

Ethanol-assisted catalytic endothermic reaction of hydrocarbon fuel was investigated on a self-made electric heating reaction evaluation apparatus, which showed an obvious promoting effect on the heat-absorbing ability by facilitating the dehydration of ethanol under low and medium temperatures, and steam reforming at high temperatures.

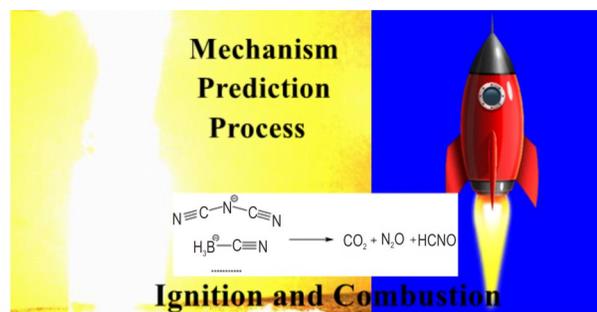
Progress on Synthesis and Performance of High-Density and High-Thermal-Stability Alkyl Diamondoid Fuels



XIE Jia-wei, WANG Xiao-yu, PAN Lun, SHI Cheng-xiang,
ZOU Ji-jun, ZHANG Xiang-wen

Chinese Journal of Energetic Materials (Hanneng Cailiao),
2020,28(5):424–434

Progress on Ignition and Combustion Mechanism of Hypergolic Ionic Liquids

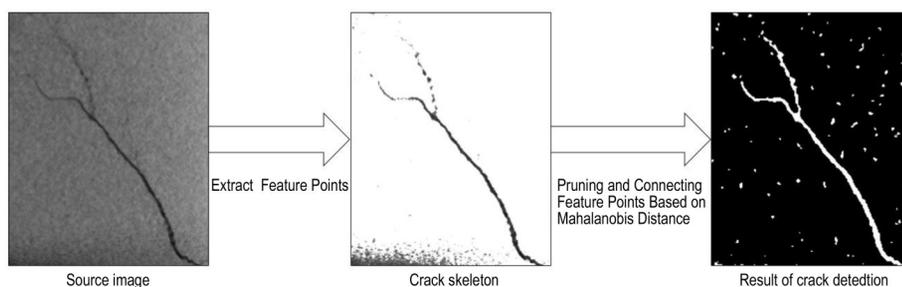


SUN Chang-geng, TANG Shao-kun

Chinese Journal of Energetic Materials (Hanneng Cailiao),
2020,28(5):435–441

Hypergolic ionic liquids are regarded as new green propellant fuels. The reaction routes and mechanism, the combustion residues, ignition and combustion process, various factors, and theoretical predictions are reviewed. Existing problems and future development are proposed.

Research on Pixel-level Crack Extraction Method for CT images of Polymer Bonded Explosives

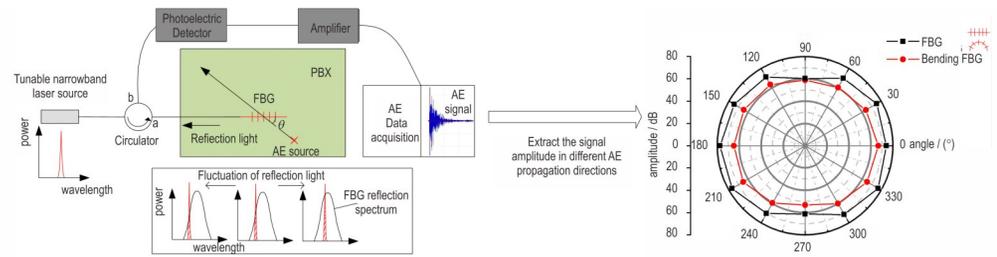


ZHANG Tao, ZONG He-hou, CHEN Hua, DAI Bin, LIU Ben-de,
LUO Ji-zhou

Chinese Journal of Energetic Materials (Hanneng Cailiao),
2020,28(5):442–448

The feature points pruning and connection algorithm based on Mahalanobis distance is used to extract low-contrast cracks from CT images of HMX-based PBX.

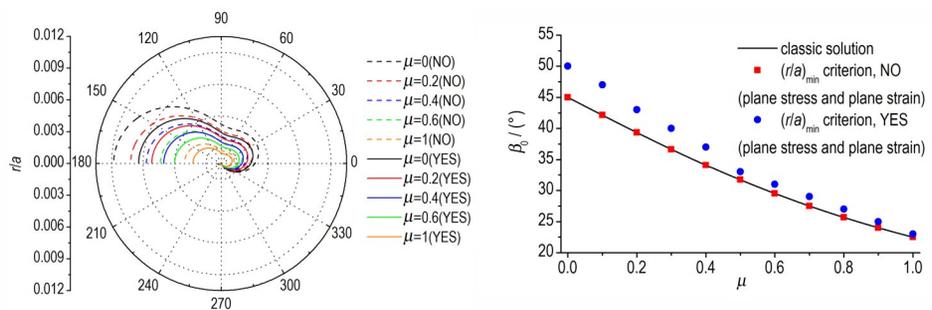
Acoustic Emission Monitoring Method of Fiber Bragg Grating in PBX



The AE monitoring system based on FBG sensor was built to study the feasibility of damage monitoring for PBX. The environmental adaptability of the system was investigated to satisfy the wide temperature range of PBX materials. The damage of PBX under mechanical loading was detected using the FBG-AE method.

QIU Zhi-wei, WEN Mao-ping, ZHOU Hong-ping, FU Tao
Chinese Journal of Energetic Materials (Hanneng Cailiao),
 2020,28(5):449-455

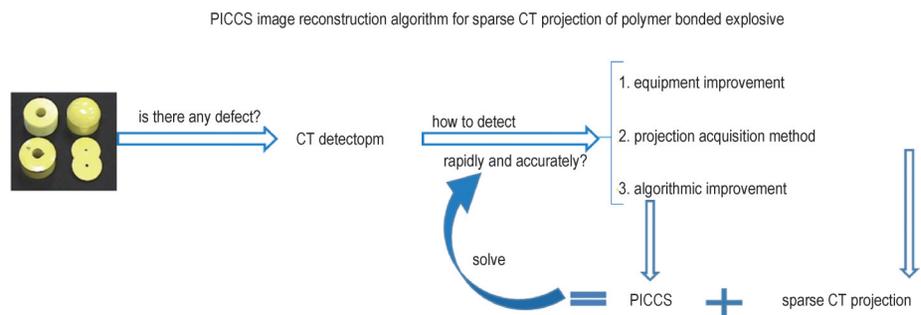
PBX Crack Tip Failure Zone and Fracture Behavior Considering the T-stress



The theoretical model of PBX crack tip failure zone considering *T*-stress was established, the effects of *T*-stress on PBX crack tip failure zone and fracture behavior were studied.

DONG Tian-bao, YUAN Hong-wei, ZHAO Long, TANG Wei
Chinese Journal of Energetic Materials (Hanneng Cailiao),
 2020,28(5):456-463

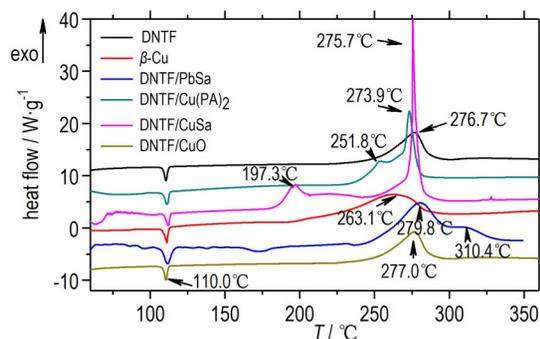
PICCS Image Reconstruction Algorithm for Sparse CT Projection of Polymer Bonded Explosive



Chosen sparse CT projection scanning method and PICCS reconstruction algorithm to research the problems of low efficiency of traditional FBP reconstruction algorithm when using CT to detect polymer-bonded explosives.

ZHANG Jian-wei, ZHANG Cai-xin, CHEN Hua, ZHANG Tao, LIU Chen, LIU Feng-lin
Chinese Journal of Energetic Materials (Hanneng Cailiao),
 2020,28(5):464-469

Influence of Lead and Copper Salt Catalysts on the Thermal Decomposition and Cook-off Responses of DNTF

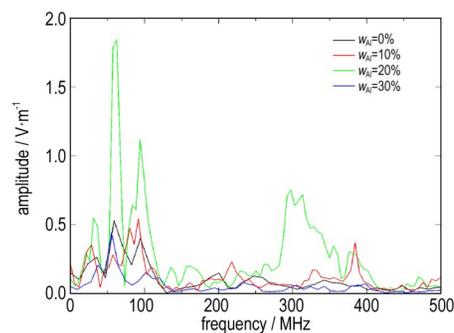
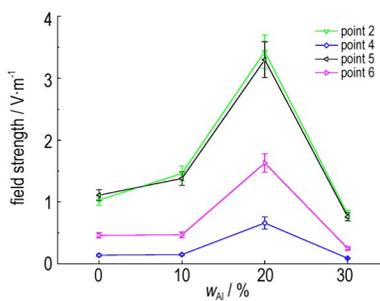
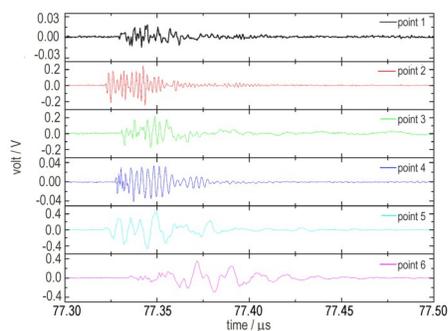


The effects of metal-salt catalysts, such as PbSa, CuSa, β -Cu, $\text{Cu}(\text{PA})_2$, and CuO on thermal decomposition were studied by PDSC at heating rate of $1^\circ\text{C}\cdot\text{min}^{-1}$, and responses of cook-off of DNTF/catalysts were studied by small cook-off experiments. The responses of cook-off of DNTF-based explosive with high constraint were studied by a small amount of CuSa by small scale cook-off experiments.

JIANG Qiu-li, LUO Yi-ming, YANG Fei, JU Rong-hui, ZHANG Meng-meng, WANG Wei, LI Bing-bo

Chinese Journal of Energetic Materials (Hanneng Cailiao), 2020,28(5):470-474

Experimental Study on Characteristics of Explosive Electromagnetic Radiation Signals of RDX Based Aluminized Explosives



The characteristics of electromagnetic radiation signals during the explosion of RDX and RDX-based aluminized explosives were measured by the broadband antenna measurement system. The relationship between aluminum content and delay time, field strength, attenuation law and spectrum of electromagnetic radiation signals were analyzed.

CHEN Hong, HE Yong, PAN Xu-chao, JIAO Jun-jie, SHEN Jie, ZHANG Jiang-nan

Chinese Journal of Energetic Materials (Hanneng Cailiao), 2020,28(5):475-482

Executive editor: JIANG Mei GAO Yi WANG Yan-xiu