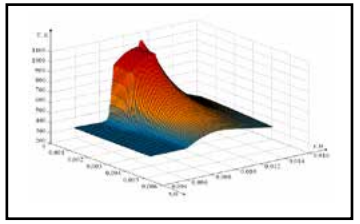
DEVELOPING THE GENERAL THEORY OF ENERGY EFFICIENT IGNITION OF LIQUID, SOLID, GELLED AND PASTY FUELS, POLYMER AND FOREST INFLAMMABLES, AS WELL AS HETEROGENEOUS SYSTEMS BY LOCAL SOURCES OF LIMITED ENERGY CAPACITY

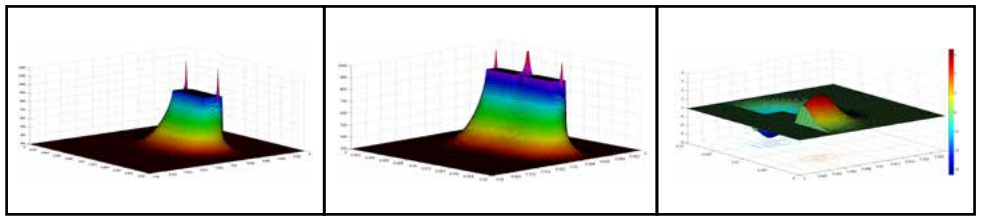

РОССИЙСКАЯ ФЕДЕРАЦИЯ

ПАТЕНТ

№ 2381492

СПОСОБ ОПРЕДЕЛЕНИЯ КАЧЕСТВА ЖИДКИХ НЕФТЕПРОДУКТОВ





Purpose

The project involves a series of fundamental research for the developing the main provisions of the modern theory of condensed substances ignition in various states of matter, under conditions of limited energy supply. The main practical application: developing recommendations and predictive models to determine conditions of energy-efficient ignition of typical liquid, solid, pasty and gelled fuels in power plants and specialized facilities; legal and regulatory guidelines for firefighters to prevent ignition of the substances listed above and various materials under conditions of local heating by interaction with a high-temperature metallic, non-metallic particles, wires, rods, concentrated light beams (such as sunlight), etc.

Current stage

Ignition processes of different fuels by local energy sources with limited capacity based on developed physical and mathematical models and experimental techniques were extensively investigated. Limited and energy-efficiency conditions of ignition processes were determined. An outline of the modern condensed substances ignition theory under local heating was developed. More than 100 articles in Russian and foreign scientific journals, besides in Siberian Branch of the Russian Academy of Sciences monograph were published. Recommendations and the first predictive models for the calculation of optimal ignition conditions of liquid, solid, pasty and gelled fuels in power plants and specialized facilities were made.

The problem to be solved by the project

The processes of condensed substances ignition in various states of matter by energy sources with limited capacity are interesting for several reasons. Firstly, there is no general theory which can predict or explain the laws regulating such processes. Secondly, in many cases, it is advisable to reduce energy costs of the resources used (energy, time, equipment, etc.) in power plants and specialized facilities. Thirdly, due to high fire risk of these processes, there is a high need in developing predictive models to define safe conditions of processing, storage, transportation, loading, and fuel filling.

Advantages over traditional solutions

There are no analogs to developed physical and mathematical models, formulated theoretical principles, predictive modules and conclusions of research (they are not published both in Russian and international journals).

Stage of developing

The project involves basic research (basically theoretical).

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СВИДЕТЕЛЬСТВО

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ЛАУРЕАТА
ПРЕМИИ ПРАВИТЕЛЬСТВА
РОССИЙСКОЙ ФЕДЕРАЦИИ


ДИПЛОМ

НАГРАЖДАЕТСЯ