

**ICPCD-2022**  
**TENTATIVE TECHNICAL PROGRAM**  
(mixed face-to-face and online format)

**Monday, April 18, 2022**

**9:50–10:20**  
**Registration**

**10:20–10:30**  
**Opening Ceremony**

**Session 1: Gaseous combustion and detonation initiation**  
Session Chair: TBA

**10:30–11:30 Keynote Lecture:**

Instabilities of supersonic combustion at plasma-based flameholding  
and beyond

*S. B. Leonov*

**11:30–12:00**  
**Coffee Break**

**12:00–12:30**

Numerical modeling of near-wall supersonic mixing using IDDES  
approach

*R. S. Solomatin, I. V. Semenov*

**12:30–13:00**  
Determination of induction and reactions time for hydrogen–air mixtures  
at high temperatures

*E. A. Baranyshin, O. G. Penyazkov, K. L. Sevruk*

**13:00–14:00**  
**Lunch**

## **14:00–14:30**

Improvement of ignition system of detonation engines with an initiated microwave subcritical streamer discharge

*P. V. Bulat, P. S. Chernyshov, I. I. Esakov, L. P. Grachev, K. N. Volkov, I. A. Volobuev*

## **14:30–15:00**

Experimental study of the initial stage of the operation process in detonation rocket and air-breathing engines

*I. O. Shamshin, V. S. Ivanov, V. S. Aksenov, P. A. Gusev, S. M. Frolov*

## **Session 2: Gaseous detonation—I**

**Session Chair: TBA**

## **15:00–15:30**

On the choice of optimal types of combustion chambers for the initiation of gas detonation

*D. V. Voronin*

## **15:30–16:00**

**Coffee Break**

## **16:00–16:30**

On some dynamic phenomena during the propagation of gaseous detonation in a medium with periodic inhomogeneity

*A. Yu. Goldin, A. R. Kasimov*

## **16:30–17:00**

New results of studies of detonation propagation in viscous turbulent flow in a duct

*V. A. Sabelnikov, V. V. Vlasenko, S. S. Molev, A. I. Troshin, S. Bakhne*

## **18:00–20:00**

**Welcome Party**

**Tuesday, April 19, 2022**

**Session 3: Gaseous detonation-II**

**Session Chair: TBA**

**10:00–11:00 Keynote Lecture:**

Deflagration-to-detonation transition in stoichiometric binary hydrocarbon (methane, propane, ethylene) – hydrogen blends in air  
*I. O. Shamshin, M. V. Kazachenko, S. M. Frolov, V. Ya. Basevich*

**11:00–11:30**

Testing of a specialized device for video recording of detonation waves  
*A. N. Samsonov, A. V. Tsar'kova, F. A. Bykovskii*

**11:30–12:00**

**Coffee Break**

**12:00–12:30**

Realization of continuously rotating detonation for syngas–air mixtures  
*A. V. Trotsyuk*

**12:30–13:00**

Simulation of homogeneous detonation interaction in hydrogen–air mixture with porous filter

*D. A. Tropin, K. A. Vyshegorodcev*

**13:00–14:00**

**Lunch**

## **Session 4: Multiphase processes and detonations**

### **Session Chair: TBA**

**14:00–14:30**

Critical conditions of puffing and microexplosion modes

*D. V. Antonov, P. A. Strizhak*

**14:30–15:00**

Puffing and microexplosion in secondary droplets

*P. A. Strizhak, D. V. Antonov*

**15:00–15:30**

Characteristics of microexplosive dispersion of gel fuel particles ignited in a high-temperature air medium

*D. Glushkov, A. Nigay, K. Paushkina and A. Pleshko*

**15:30–16:00**

**Coffee Break**

**16:00–16:30**

Multidimensional numerical simulation of kerosene spray fragmentation, vaporization and self-ignition in air

*K. A. Byrdin, V. A. Smetanyuk, S. M. Frolov, I. V. Semenov*

**16:30–17:00**

Simulation of heterogeneous detonation interaction with porous insert

*S. A. Lavruk, D. A. Tropin*

**Wednesday, April 20, 2022**

**Session 5: Applications of Pulsed and Continuous Detonations**

**Session Chair: TBA**

**10:00–11:00 Keynote Lecture:**

Pulsed and continuous detonations: review of worldwide patents over 50 years

*K. A. Avdeev, S.M. Frolov, V.I. Zvegintsev*

**11:00–11:30**

Transmission of shock and detonation waves in confined and semiconfined channels filled with liquid saturated by inert and chemically active bubbles

*K. A. Avdeev, V. S. Aksenov, I. S. Sadykov, S. M. Frolov, F. S. Frolov, I. O. Shamshin.*

**11:30–12:00**

**Coffee Break**

**12:00–12:30**

On the mechanism of aeroacoustic initiation of pulsed quasi-detonation in an ejector pulsed jet engine

*K. V. Migalin, A. K. Sidenko*

**12:30–13:00**

Study of detonative combustion in an ejector pulsed jet engine

*I. P. Boichuk, K. A. Sidenko, A. V. Grinek*

**13:00–14:00**

**Lunch**

**14:00–14:30**

Gasification of gaseous, liquid and solid wastes with detonation-born ultrasuperheated steam

*K. A. Avdeev, V. S. Aksenov, F. S. Frolov, S. M. Frolov, I. S. Sadykov, I. O. Shamshin, A. S. Silantiev, V. A. Smetanyuk*

**14:30–15:00**

Afterburner with continuous detonation of liquid fuel

*S. M. Frolov, V. S. Ivanov, I. O. Shamshin, V. S. Aksenov, M. Yu. Vovk,  
I. V. Mokrynskii, V. A. Bruskov, D. V. Igon'kin, S. N. Moskvitin,  
A. A. Illarionov, E. Yu. Marchukov*

**15:00–15:30**

Forecasting the possibility of the development of explosive conversion processes in the CSP under different types of external impacts according to the dispersion degree of high-energy materials

*E. V. Romanova, B. V. Pevchenko, R. G. Nikitin*

**15:30–16:00****Coffee Break****16:00–16:30**

Shaping of expanding channel for producing planar detonations at open end

*V. S. Aksenov, S. M. Frolov, I. S. Sadykov, I. O. Shamshin,  
A. S. Silantiev, V. A. Smetanyuk*

**16:30–17:30****Panel Discussion****19:00–22:00****Conference Dinner**

**Thursday, April 21, 2022**

**10:00–14:30**

Excursion program (to be announced later)