

**MONDAY, SEPTEMBER 17, 2018**

**8:30–9:20**

**Registration**

**9:20–9:30**

**Opening Ceremony**

**Session 1**

**FUNDAMENTALS OF DEFLAGRATIONS  
AND DETONATIONS-I**

**Session Chair: Frolov S. M.**

**9:30–10:30**

***Keynote Lecture:***

Recent studies on liquid rotating detonation engine

***Hayashi A. K., Yoshida W., Asaharai M., Tsuboi N.,  
and Dzieminska E.***

**10:30–11:00**

Combustion regime transition for an *n*-decane/O<sub>2</sub>/Ar mixture  
at various thermodynamic initial conditions

***Quintens H., Strozzi C., Zitoun R., and Bellenoue M.***

**11:00–11:30**

Modeling of multistage autoignition in diesel engine based  
on the detailed kinetic mechanism of fuel oxidation

***Sergeev S. S., Frolov S. M., Basevich V. Ya., Basara B.,  
and Priesching P.***

**11:30–12:00**

**Coffee break**

**12:00–12:30**

Local scaling method for three-dimensional simulation  
of combustion with detailed chemistry

***Medvedev S. N., Frolov S. M., and Basara B.***

**12:30–13:00**

Characteristics of cellular detonation in convergent channel

***Liu Q., Liu Y., and Lee J. H. S.***

**13:00–14:00**

**Lunch**

## **Session 2**

### **FUNDAMENTALS OF DEFLAGRATIONS AND DETONATIONS-II**

**Session Chair: *Hayashi A. K.***

**14:00–15:00**

#### ***Keynote Lecture:***

Continuous detonation of a hydrogen–oxygen gas mixture  
in a plane-radial combustor with exhaustion  
toward the periphery

***Bykovskii F. A., Zhdan S. A., Vedernikov F.,  
Tarnaikin A. E., and Samsonov A. N.***

**15:00–15:30**

Numerical simulation of detonation in a curved channel

***Levin V. A., Manuylovich I. S., and Markov V. V.***

**15:30–16:00**

To the mechanisms of particles relaxation behind the shock  
wave

***Sidorenko D. A. and Utkin P. S.***

**16:00–16:30**

**Coffee break**

**16:30-17:00**

The practice of detonation waves simulation on fully unstructured computational grids

***Lopato A. I. and Utkin P. S.***

**17:00–17:30**

Numerical investigation of the effect of water spray on irregular and regular gaseous detonation

***Watanabe H., Matsuo A., Matsuoka K., Kawasaki A., and Kasahara J.***

**17:30–18:00**

Detonation control in a high-velocity gas flow

***Levin V. A. and Zhuravskaya T. A.***

**18:30–21:00**

**Welcome Party**

**TUESDAY, SEPTEMBER 18, 2018**

**Session 3**

**FUNDAMENTALS OF DEFLAGRATIONS  
AND DETONATIONS-III**

**Session Chair: Kasahara J.**

**09:30–10:30**

***Keynote Lecture:***

Advancements in laboratory scale detonation experiments  
at AFRL

***Fotia M. L., Hoke J., and Schauer F.***

**10:30–11:30**

***Keynote Lecture:***

Previous and ongoing detonation studies applied to propulsion  
in Poitiers

***Zitoun R., Vidal P., Boulal S., Hanstmetzger S., Rodriguez V.,  
and Jourdain C.***

**11:30–12:00**

**Coffee break**

**12:00–12:30**

Kinetics of aluminum particles combustion in solid-propellant  
combustion products

***Babuk V. A., Budnyi N. L., and Nizyaev A. A.***

**12:30–13:00**

Modeling of cellular detonations in aluminum submicron  
and nanoparticle suspensions

***Khmel' T. A. and Fedorov A. V.***

**13:00–14:00**

**Lunch**

**Session 4**  
**FUNDAMENTALS OF DEFLAGRATIONS  
AND DETONATIONS-IV**

**Session Chair: Yu K.**

**14:00–15:00**

***Keynote Lecture:***

Research and development of rotating detonation engine system for the sounding rocket flight experiment

***Kasahara J., Kawasaki A., Matsuoka K., Matsuo A., Funaki I., Nakata D., and Uchiumi M.***

**15:00–15:30**

Modeling of detonation propagation in variable cross-section channels filled with heterogeneous aluminum mixture

***Fedorov A. V. and Lavruk S. A.***

**15:30–16:00**

Detonation propagation in the bidispersed gas suspension of aluminum micro- and nanoparticles

***Fedorov A. V., Khmel' T. A., and Lavruk S. A.***

**16:00–16:30**

**Coffee break**

**16:30–17:00**

Interaction of detonation waves in composite silane-hydrogen mixtures with the clouds of inert micro- and nanoparticles

***Tropin D. and Fedorov A. V.***

**17:00–17:30**

On the dependence of reaction rate on strain rate in reacting medium

***Trofimov V. S., Veretennikov V. A., and Petrov E. V.***

**17:30–18:00**

Transient combustion phenomena in high-speed flows in ducts

***Vlasenko V. V., Sabelnikov V. A., Molev S. S.,  
Voloshchenko O. V., Ivankin M. A., and Frolov S. M.***

**19:30–23:30**

**Excursion “Evening Petersburg”**

**WEDNESDAY, SEPTEMBER 19, 2018**

**10:00–15:00**

**Technical Excursion to Saint-Petersburg State Maritime  
Technical University;**

**or**

**City Tour “Pushkin and Petersburg”**

**15:00–16:00**

**Lunch**

THURSDAY, SEPTEMBER 20, 2018

**Session 5**

**CONTINUOUS AND PULSED DETONATION ENGINES-I**

**Session Chair: Fotia M. L.**

**09:30–10:30**

***Keynote Lecture:***

Anatomy of rotating detonation engine cycle - analyses of thermodynamic cycle and flowfield structure

***Burr J., Fievisohn R., and Yu K. H.***

**10:30–11:30**

***Keynote Lecture:***

Wind tunnel experiments with the hydrogen fueled air-breathing continuous-detonation engine at Mach 5 to 8

***Ivanov V. S., Frolov S. M., Aksenov V. S., and Shamshin I. O.***

**11:30–12:00**

**Coffee break**

**12:00–12:30**

Numerical simulation of rotating detonation in annular gap

***Levin V. A., Manuylovich I. S., and Markov V. V.***

**12:30–13:00**

Numerical simulation of shock and detonation waves in bubbly liquids

***Tukhvatullina R. R. and Frolov S. M.***

**13:00–14:00**

**Lunch**

## Session 6

### CONTINUOUS AND PULSED DETONATION ENGINES-II

Session Chair: Molkov V. V.

**14:00–15:00**

***Keynote Lecture:***

Progress on turbine–combustor integration

***Paniagua G.***

**15:00–15:30**

Analysis of advanced turbine integration with rotating detonation combustors using a time-accurate reduced-order-model

***Braun J. and Paniagua G.***

**15:30–16:00**

Steadily-rotating, semi-confined, overdriven detonation:  
An experimental study

***Jourdain C., Rodriguez V., Zitoun R., and Vidal P.***

**16:00–16:30**

**Coffee break**

**16:30–17:00**

Spectral structure of thrust and gas pressure pulsations signals  
in nozzles with deflector

***Levin V. A., Afonina N. E., Gromov V. G., Manuylovich I. S.,  
Smekhov G. D., Khmelevsky A. N., and Markov V. V.***

**17:00–17:30**

Modeling of the initiation of gas detonation in plane radial  
chamber with outflow to the periphery

***Voronin D. V.***

**18:30–22:00**

**Conference Dinner**



**FRIDAY, SEPTEMBER 21, 2018**

**Session 7**

**SAFETY AND CONDENSED-PHASE DETONATIONS**

**Session Chair: Paniagua G.**

**09:30-10:30**

***Keynote Lecture:***

Blast wave and fireball after hydrogen tank rupture in a fire

***Molkov V. V., Cirrone D. M. C., Shentsov V. V., Dery W., Kim W., and Makarov D. V.***

**10:30-11:00**

Computational chemistry employment in evaluation and validation

of detonation pressure of plastic explosive — PBX

***Mendonça F. B., Gonçalves R. F. B., Urgessa G. S., Iha K., Domingues M. G., and Rocco J. A. F. F.***

**11:00-11:30**

**Coffee break**

**11:30-12:00**

Research on stability of primary explosive in extreme temperature

***Liu S., Jia Z., and Chen J.***

**12:00-12:30**

The detonation wave in emulsion explosives: Modes of propagation

***Gorinov S. A. and Maslov I. Yu.***

**12:30-13:30**

**Lunch**

## Session 8

### CONTINUOUS AND PULSED DETONATION ENGINES-III

Session Chair: Zitoun R.

**13:30–14:00**

Study of the thrust of a reactive-type pulsed detonation combustor operating on oxygen-enriched Jet 1/air mixtures

***Alhussan K., Assad M. S., Penyazkov O. G., and Chernukho I. I.***

**14:00–14:30**

Air-breathing PDE module for a flying vehicle: numerical simulations and firing tests

***Frolov S. M., Aksenov V. S., Ivanov V. S., Shamshin I.O., and Zangiev A. E.***

**14:30–15:00**

RDE with liquid-film detonation

***Shamshin I. O., Aksenov V. S., and Frolov S. M.***

**15:00–15:30**

How to utilize the kinetic energy of pulsed detonation products?

***Smetanyuk V. S. and Frolov S. M.***

**15:30–16:00**

Pulsed detonation hydrojet: Simulations and experiments

***Avdeev K. A., Aksenov V. S., Frolov S. M., Sadykov I. S., Shamshin I. O., and Tukhvatullina R. R.***

**16:00–16:30**

Combustion in the gas cavity under the boat bottom: Simulations and experiments

***Avdeev K. A., Aksenov V. S., Frolov S. M., Sadykov I. S., Shamshin I. O., and Zangiev A. E.***

**16:30–17:00**

**PANEL DISCUSSION**

**“WHAT IS THE PROPAGATION MECHANISM  
OF LOW-VELOCITY DETONATION IN RDE?”**

**17:00–18:00**

**FAREWELL**

