

Program

49th International Annual
Conference of the Fraunhofer ICT
June 26 – 29, 2018

Convention Center, Gartenhalle,
Karlsruhe, Germany

Energetic Materials Synthesis, Processing, Performance

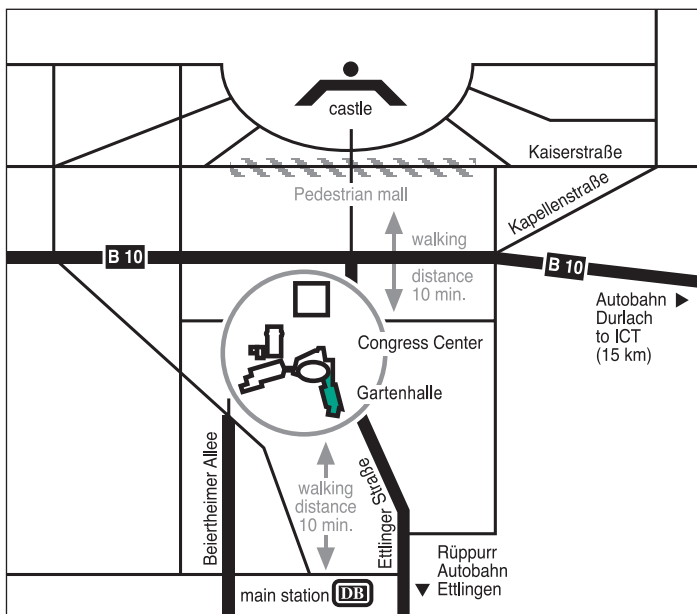


Fraunhofer

ICT

Karlsruhe City Plan

How to find the venue



Karlsruhe is located 120 km south of Frankfurt (Main)/Frankfurt International Airport just beside the Autobahn A5, and is also connected to Frankfurt via the Intercity Express Train ICE.

Additional airports are:
Strasbourg (F) (approx. 100 km) and Stuttgart (D) (approx. 90 km)

Congress Center Karlsruhe
Festplatz 9
76137 Karlsruhe
Germany

49th International Annual Conference of the Fraunhofer ICT

Energetic Materials – Synthesis, Processing, Performance

The research and development of new energetic materials and formulations for ammunitions, propellants and pyrotechnics is an ongoing process worldwide. Energetic materials must meet a variety of requirements, some of which may be contradictory. Requirements relate primarily to the performance, but insensitivity, stability and vulnerability also play an important role. However, new perspectives have recently emerged in this field. Increasing awareness of the risks that toxic compounds pose to humans and the environment has led to the banning of hazardous materials, and stimulated the search for non-critical substitute components. Other new perspectives include synthesis and processing methods that are environmentally friendly or give access to new materials such as co-crystals, nanocomposites, energetic ionic liquids and 3D energetic metal-organic frameworks. The new energetic ingredients, and advanced production technologies such as the additive manufacturing of energetic materials, may lead to new, innovative applications and the enhanced performance of existing products.

The 49th International Annual Conference of the Fraunhofer ICT will welcome contributions relating to new energetic materials, non-hazardous synthesis and processing techniques, particle technology, binders and bonding agents, formulations and characterization. In addition, associated applications in propellants, high explosives and pyrotechnics will be highlighted.

The objective of the 49th International Annual Conference of the Fraunhofer ICT will be knowledge exchange on basic research, technical implementation, political requirements and industrial use, in order to promote the forward-looking development, production and application of energetic materials related to defense technology, pyrotechnic devices and space propulsion.

Chairman of the Conference

Dr. Uwe Schaller

Fraunhofer ICT, Pfinztal, Germany

General Information

REGISTRATION

Please return the enclosed registration form or register online:

www.ict.fraunhofer.de/jata2018

Registration fees (incl. proceedings, coffee breaks, lunch), depending on arrival of the registration at the ICT:

- Registration up to **June 8th**:
€ 990,-- (incl. 19% VAT)
- Registration up to **June 18th**:
€ 1.250,-- (incl. 19% VAT)

Participation cannot be guaranteed for registrations arriving after June 18th, 2018.

The fee must be paid **upon receipt of the invoice** by bank transfer to the account given on the invoice

CANCELLATION POLICY

€ 600.-- will be charged for cancellations after **June 18th, 2018**.
No-shows will be charged the whole fee.

ACCOMMODATION

Online: www.ict.fraunhofer.de/accommodation2018

CONFERENCE OFFICE

Foyer of the GARTENHALLE.

Open from Tuesday, June 26, 16.00 h till Friday, June 29, 14.30 h **during the Conference** and may be reached by

Phone +49-(0)7 21/ 37 20 – 60 00

CHECK IN/WELCOME RECEPTION

Please check in at the Conference Office on **Tuesday, June 26, between 16.00 and 20.00 h.**

All participants are cordially invited to the **Welcome Reception** on the same day, starting at **18.00 h** in the foyer of the GARTENHALLE.

CONFERENCE LANGUAGE

English

GET-TOGETHER AND VISIT OF THE INSTITUTE

The Fraunhofer ICT can be visited on **Thursday, June 28** in the evening. There will be several short tours of the Institute, accompanied by a **Get-together Party** with draught beer, barbecue and fireworks (after sunset). Please **mark on your registration form** whether you wish to participate.

EXHIBITING COMPANIES

AlzChem Trostberg GmbH
Trostberg, D

INGTEC Technik AG
Magden, CH

Kistler Instrumente GmbH
Sindelfingen, D

Tuesday, June 26

18.00 – 20.00 **Welcome Reception**
Foyer of the GARTENHALLE

Wednesday, June 27

9.00 **Welcome Address and Opening**

1st Session – ENERGETIC SYSTEMS AND EXPLOSIVES

Chair: J. Campos
University of Coimbra, PT

- 9.20 **V1 A STRATEGIC RESEARCH AGENDA FOR THE AMMUNITION TECHNOLOGIES AREA**
H. Östmark, C. Eldsäter
FOI, Stockholm, SE
W. de Klerk, A. van der Heijden
TNO Defence, Safety and Security, Rijswijk, NL
- 9.40 **V2 NEED AND METHODS FOR SURVEILLANCE OF DIFFERENT TYPES OF AMMUNITION**
W. de Klerk
TNO Defence, Safety and Security, Rijswijk, NL
- 10.00 **V3 NITROGUANIDINE (NQ) – AN UNDERESTIMATED INSENSITIVE HIGH EXPLOSIVE
NEW INSIGHTS TO SENSITIVENESS AND PERFORMANCE**
E.-C. Koch
Lutradyn – Energetic Materials Science & Technology
Consulting, Kaiserslautern, D
- 10.20 **V4 REACH TREATMENT OF PYROTECHNICS INITIATORS FOR SPACE APPLICATIONS**
M. Palladino
ESA, F
B. Martin, P. Joanny
Dassault, Saint Cloud, F
D. Dilhan
CNES, Paris, F
M. Wolf, T. Maier
ArianeGroup GmbH, D
- 10.40 **Coffee Break**

2nd Session – EXPLOSIVES AND DETONATION

Chair: S. Wilker
BAAINBw, Koblenz, D

- 11.10 **V5 DEVELOPMENT OF NANO-TATB AND COMPARISON OF DETONATION SPREADING WITH PRESSED ULTRA-FINE TATB**
J.D. Olles, R.R. Wixom, R. Knepper, C. Yarrington
Sandia National Laboratories, Albuquerque, USA
R. Patel, V. Stepanov
US Army RDECOMUS-ARDEC, Wharton, USA
- 11.30 **V6 HYBRID ENERGETIC NANOCOMPOSITES: GREEN DETONATING COMPOUNDS FOR REPLACING LEAD-BASED PRIMARY EXPLOSIVES**
M. Comet, C. Martin, F. Schnell, D. Spitzer
ISL, Saint-Louis, F
- 11.50 **V7 OPTICAL FIBER METROLOGY FOR DETONATION AND SHOCK TRANSMISSION MEASUREMENTS**
J. Quaresma, R. Mendes, J. Campos
LEDAP/ADAI, Coimbra, PT
L. Deimling, T. Keicher
Fraunhofer ICT, Pfinztal, D
- 12.10 **V8 MIXTURES OF TATP WITH OXIDIZING COMPONENTS: EXPLOSIVE AND THERMAL PROPERTIES**
L. Jeunieau, M.H. Lefebvre
Royal Military Academy, Brussels, B
- 12.30 **Lunch Break**

3rd Session – SYNTHESIS / NEW MATERIALS

Chair: G. Jacob
Ariane Group, F

- 14.00 **V9 SYNTHESIS AND CHARACTERIZATION OF ENERGETIC COORDINATION COMPOUNDS AS NEW PRIMARY EXPLOSIVES BASED ON 2-SUBSTITUTED TETRAZOLES**
N. Szimhardt, M.H.H. Wurzenberger, T.M. Klapötke,
J. Stierstorfer
University of Munich (LMU), München, D
- 14.20 **V10 HIGH-PERFORMING AND THERMALLY STABLE ENERGETIC (E)-1,2-bis(3,4-DIAMINO-1,2,4-TRIAZOL-5-yl)-ETHENE DERIVATIVES**
Qing Ma, Ya Chen, Longyu Liao, Huanchang Lu, Guijuan Fan,
Jinglun Huang
Institute of Chemical Materials CAEP, Mianyang, PRC

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- 14.40 **V11 INTERNAL PLASTICIZED GA-POLYETHERS FOR SOLID PROPELLANT BINDERS**
S. Hafner, T. Keicher
Fraunhofer ICT, Pfingsttal, D
T.M. Klapötke
LMU, München, D
- 15.00 **V12 SYNTHESIS AND APPLICATIONS OF ENERGETIC MOFS**
Hui Su, Jichuan Zhang, Yao Du, Feipeng Lu, Shenghua Li, Siping Pang
Beijing Institute of Technology, Beijing, PRC
- 15.20 **V13 HIGH-PERFORMANCE ENERGETIC MATERIALS BASED ON BIFUNCTIONALIZED FURAZAN WITH NITRAMINO AND DINITROMETHYL GROUP**
Haifeng Huang, Xiaoqiang Li, Hui Li, Jun Yang
Shanghai Institute of Organic Chemistry, Shanghai, PRC
- 15.40 **Coffee Break**
- 16.00-18.00 **Live Stream Football World Cup: Germany – South Korea**
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Thursday, June 28

4th Session – MODELING, SIMULATION AND PREDICTION
Chair: A.S. Cumming
University of Edinburgh, GB

- 09.00 **V14 A NEW ALGORITHM TO DETERMINE GEOMETRIC PROPERTIES OF PROPELLANT GRAINS FROM COMPUTER TOMOGRAPHIC IMAGING**
S. Wurster
Fraunhofer ICT, Pfingsttal, D
- 09.20 **V15 COMPUTATIONAL CHEMICAL CALCULATION OF THE HEAT OF EXPLOSION OF ENERGETIC MATERIALS**
J. Glorian, K.-T. Han, S. Braun, B. Baschung
ISL, Saint-Louis, F
- 09.40 **V16 DEVELOPMENT OF A METHOD FOR CALCULATING THE DETONATION VELOCITY OF INDIVIDUAL EXPLOSIVES AND ITS APPLICATION FOR EXPLOSIVE MIXTURES WITH A HIGH CONTENT OF INORGANIC OXIDANTS AND METALLIC COMBUSTIBLES**
A. Smirnov, S. Smirnov
Bakhirev State Scientific Research Institute of Mechanical Engineering, Dzerzhinsk, RUS
M. Kuklya
University of Maryland, USA

10.00 **V17 THE BIG BANG THEORY: TOWARDS PREDICTING IMPACT SENSITIVITY OF ENERGETIC MATERIALS**
A.A.L. Michalchuk, C.R. Pulham, C.A. Morrison
University of Edinburgh, GB

10.20 **V18 COMPLEMENTARY USE OF HIGH-LEVEL AB INITIO CALCULATIONS AND THERMAL ANALYSIS TO DISCLOSE THERMAL BEHAVIOR OF ENERGETIC TETRANITROACETIMIDIC ACID**
N.V. Muravyev, V.G. Kiselev, K.A. Monogarov, A.N. Pivkina
Semenov Institute of Chemical Physics RAS, Moscow, RUS
A.F. Asachenko
Topchiev Institute of Petrochemical Synthesis RAS,
Moscow, RUS
I.V. Fomenkov
Zelinsky Institute of Organic Chemistry RAS, Moscow, RUS

10.40 **Coffee Break**

11.10 **POSTER SESSION**
Chair: R. Doherty
University of Maryland, USA

12.30 **Lunch Break**

5th Session – CHARACTERIZATION I
Chair: W. de Klerk
TNO, Rijswijk, NL

14.00 **V19 CHARACTERIZATION OF GLASSY NITRAMINES**
R. Patel, V. Stepanov, M. Doukkali
US Army, Picatinny Arsenal, USA

14.20 **V20 DETERMINATION OF TIME TO IGNITION OF SLOW COOKOFF BY ADVANCED KINETIC ELABORATION OF HEAT FLOW DATA**
B. Roduit, R. Zufferey, M. Hartmann
AKTS AG, Siders, CH
P. Folly, A. Sarbach
armasuisse, Thun, CH

14.40 **V21 A STUDY ON THE RELIABILITY OF PERFORMANCE MEASUREMENT ACCORDING TO EXPERIMENTAL CONDITIONS IN A CLOSED BOMB TEST**
Hyeonju Yu, Seung-Gyo Jang
Agency for Defense Development, Daejeon, ROK
Dasom Kim
Hanwha Research Institute of Technology, Daejeon, ROK

15.00 **V22 THERMAL CHARACTERIZATION OF NATURALLY AGED GUN AND ROCKET PROPELLANTS**
M. Heil
Fraunhofer ICT, Pfinztal, D

15.20 **V23 MICROSTRUCTURE AND THERMAL BEHAVIOR OF ADN-PRILLS INVESTIGATED BY MEANS OF X-RAY DIFFRACTION**
M. Herrmann, U. Förter-Barth, H. Fietzek, P.B. Kempa, T. Heintz
Fraunhofer ICT, Pfinztal, D

15.40 **Coffee Break**

6th Session – CHARACTERIZATION II

Chair: C. Eldsäter
FOI, Tumba, SE

16.00 **V24 HIGH RESOLUTION RAMAN SPECTROSCOPIES: NEW CHARACTERISATION METHODS DEVELOPPED TO INVESTIGATE THE STRUCTURE OF NANOMETRIC ENERGETIC FORMULATIONS**
D. Spitzer, J. Hübner
ISL, Saint-Louis, F

16.20 **V25 SYNTHESIS AND PROPERTIES OF ENERGETIC HNS CO-CRYSTALS REGULARLY CONSTRUCTED BY H-BONDING, π - π STACKING AND VAN DER WAALS INTERACTIONS**
Yu Liu, Shiliang Huang, Shichun Li, Jinjiang Xu, Jinshan Li
Institute of Chemical Materials CAEP, Mianyang, PRC
Zeshan Wang
Nanjing University of Science and Technology, Nanjing, PRC

16.40 **V26 THERMAL CONDUCTIVITY ENHANCEMENT FOR POLYMER BASED ENERGETIC COMPOSITES WITH AN ALTERNATING MICROLAYERED NETWORK STRUCTURE**
Guansong He, Jiahui Liu, Zhijian Yang
Institute of Chemical Materials CAEP, Mianyang, PRC

17.00 – 17.30 **Coffee / Refreshments**

17.30 **Bus Departure from Conference Hall to Fraunhofer ICT**

18.00 **Get-together Barbecue Party**
approx. 18.30 **Guided Tours** of Fraunhofer ICT

22.30 **Fireworks**

Bus transfer to hotels, Karlsruhe City and Main Station will be available (starting 19.00 h) during the whole evening.

We would like to thank ZINK-Feuerwerk GmbH, D-74389 Cleebornn, for sponsoring the fireworks.

Friday, June 29

7th Session – PROCESSING

Chair: R.L. Simpson

Lawrence Livermore National Laboratory, USA

- 9.00 **V27 OPTIMISATION OF SLURRY COATING PROCESS TO MANUFACTURE PBX USING A DESIGN OF EXPERIMENT APPROACH**
P. Bolton, A. Contini, R. Cox, M. Hopkins Till, C. Kalha
AWE, Aldermaston, GB
- 9.20 **V28 RESONANT, IN-CASE MIXING OF A POLYMER-BONDED EXPLOSIVE SHAPED CHARGE**
J.M. Wilgeroth, R. Davey, A. Burn
BAE Systems Land, Glascoed Usk, GB
- 09.40 **V29 AN AMMONIUM DINITRAMIDE (ADN) COCRYSTAL: A PROMISING PROPELLANT OXIDIZER WITH DECREASED HYGROSCOPICITY**
Zang-Wei Yang, Hao-Jing Wang, Yuan Ma, Fu-De Nie,
Hong-Zhen Li
Institute of Chemical Materials CAEP, Mianyang, PRC
- 10.00 **V30 DEAGGLOMERATION AND COATING OF AL NANOPARTICLES**
A. Vorozhtsov
Tomsk State University, Tomsk, RUS / Institute of Problems in
Chemical and Energetic Technologies, Byisk, RUS
N. Rodkevich, E. Glazkova, A. Pervikov, M. Lerner
Institute of Strength Physics and Materials Science of Siberian
Branch RAS, Tomsk, RUS
- 10.20 **Poster Awards**
- 10.40 **Coffee Break**

8th Session – PROPELLANTS

Chair: S. Wurster

Fraunhofer ICT, Pfingsttal, D

- 11.30 **V31 BOROHYDRIDE-RICH ANION BASED ENERGETIC IONIC LIQUIDS AS HYPERGOLIC FUELS**
Wenquan Zhang
Institute of Chemical Materials CAEP, Mianyang, PRC

- 11.50 **V32 LASER IGNITION OF NON-SOLVENT IONIC LIQUID BASED ON HIGH ENERGETIC SALTS WITH TWO TYPES LASER FOR THRUSTER**
N. Itouyama
The University of Tokyo, Tokyo, JAP
H. Habu
Japan Aerospace Exploration Agency ISAS/JAXA, Sagamiara Kanagawa, JAP
- 12.10 **V33 GELLED PROPELLANTS UNDER THERMAL LOAD: A FIRST INSIGHT INTO DECOMPOSITION PHENOMENA**
D. Freudenmann, M. Bühler, C. Kirchberger, H. Ciezki, S. Schlechtriem
DLR Institute of Space Propulsion Lampoldshausen, Hardthausen, D
- 12.30 **V34 TWO-STEP REACTION PROCESS FOR SYNTHESIS HYDROXYL-TERMINATED POLY(BUTADIENE)-BASED POLYURETHANE AS COMPOSITE PROPELLANT BINDER**
S. Brzic, M. Dimic, M. Bogosavljevic, J. Nestic
Military Technical Institute, Belgrade, SRB
- 12.50 **V35 BURNING BEHAVIOUR OF ADN SOLID PROPELLANTS IN COMPARISON TO OTHER OXIDIZERS**
A. Imiolek, V. Weiser, F. Locatelli, C. Tagliabue, V. Gettwert, D. Bieroth
Fraunhofer ICT, Pfinztal, D
- 13.10 **V36 INNOVATIVE NITROGEN-DOPED BORON PROPELLANTS**
T. Manning, K. Klingaman, M. Fair, R. Field, R. Crownover, J. Bolognini, V. Panchal, E. Rozumov
US Army RDECOM ARDEC, Picatinny Arsenal, USA
P. Matter
Ohio State University, USA
- 13.30 **Closing Remarks**
- 13.40 **Lunch**

POSTER PROGRAM

Posters will be presented during the whole conference. A special **Poster Session** will take place on **Thursday, June 28, 11.10 – 12.30 h**. During this time authors should be present for discussion at their posters in the foyer of the Conference Hall.

P37 COMPATIBILITY TESTING OF NITROCELLULOSE WITH ORGANIC STABILIZERS

D. Trache, A. Fouzi Tarchoun
Ecole Militaire Polytechnique, Algiers, ALG

P38 EFFECT OF ORGANIC STABILIZERS' EUTECTIC MIXTURES ON NITROCELLULOSE STABILITY

S. Chelouche, D. Trache, A. Fouzi Tarchoun, K. Khimeche, A. Mezroua
Ecole Militaire Polytechnique, Algiers, ALG

P39 RHEOLOGICAL BEHAVIORS OF PROPELLANT BINDER IN EXTRUSION PROCESSING ASSISTED WITH SUPERCRITICAL CARBON DIOXIDE

Yajun Ding, Hao Liang, Shiyong Li, Sanjiu Ying, Zhongliang Xiao
Nanjing University of Science and Technology, Nanjing, PRC

P40 PREPARATION AND PROPERTIES OF MIXED NITRATES PROPELLANT MODIFIED BY CELLULOSE NANOFIBERS

Hao Liang, Yong Xia, Shiyong Li, Yajun Ding, Weidong He, Zhongliang Xiao
Nanjing University of Science and Technology, Nanjing, PRC

P 41 BURNING PERFORMANCES OF MICROCELLULAR PROPELLANTS COATED BY POLYMER DETERRENT

Shiyong Li, Hao Liang, Yajun Ding, Wenlong Wu, Sanjiu Ying,
Zhongliang Xiao
Nanjing University of Science and Technology, Nanjing, PRC

P 42 STUDYING THE AGING BEHAVIOR OF SELECTED BASE BLEED FORMULATIONS

E.M. Youssef, A. Abdelgawad
Technical Research Center (TRC), Cairo, EGY
H.E. Mostafa
Military Technical College (MTC), Cairo, EGY

P 43 ADVANCED ANALYSIS TECHNIQUES FOR MONITORING AGED DOUBLE BASE PROPELLANTS

A. Abdelgawad, E.M. Youssef
Technical Research Center (TRC), Cairo, EGY
H.E. Mostafa
Military Technical College (MTC), Cairo, EGY

P 44 TEMPERATURE AND TIME DEPENDENT DIFFUSION CONSTANTS OF PROPELLANT GK 5030

M. Kaiser, T. Barski, T. Hagedorn, C. Bäumker
WTD 91, Meppen, D

- P 45 PRIMARY EXPLOSIVE ANALYSIS BY NMR QUANTITATIVE DETERMINATION OF SALTS OF TRINITRORESORCINE AND 4,6-BENZOFUROXAN**
M. Kaiser, T. Hagedorn
WTD 91, Meppen, D
- P 46 NANOCRYSTALLIZATION OF AMMONIUM DINITRAMIDE (ADN) BY SPRAY FLASH EVAPORATION (SFE)**
J.-E. Berthe, D. Spitzer
ISL, Saint-Louis, F
- P 47 MAGNESIUM RICH PYROTECHNIC FLARE COMPOSITIONS**
D. Juknelevicius
Vilnius University, Vilnius, LT
- P 48 INFLUENCE FACTORS AND RESPONSE CHARACTERISTICS OF VARIOUS LLM-105 BASED PBXS UNDER COMPRESS AND SHEAR**
Dai Xiaogan, Wen Yushi, Yang Zhijian
Institute of Chemical Materials CAEP, Mianyang, PRC
- P 49 STUDIES ON ADIABATIC SHEAR FRACTURE OF METAL PLATE UNDER DETONATION EFFECT OF PERFUSION EXPLOSIVE**
Feiyun Chen, Xiaohan Wei, Peng Wang, Weidong He, Zeshan Wang
Nanjing University of Science and Technology, Nanjing, PRC
Zhongyu Liu
Shandong Yinguang Technology Co. Ltd., Shandong, PRC
- P 50 THE INVESTIGATION OF LITHIUM-BASED FLARE AND STROBE FORMULATIONS**
J. Glück, T.M. Klapötke
University of Munich (LMU), München, D
J.J. Sabatini
US Army Research Laboratory Energetics Technology Branch, Aberdeen Proving Ground, USA
- P 51 THERMAL DEGRADATION STUDIES OF NITRATED HTPB AND ITS EFFECTS ON THE DECOMPOSITION OF AP**
Wei-Chi Li
National Chung Shan Institute of Science and Technology, Taoyuan, ROC
- P 52 IGNITION AND COMBUSTION OF COMPOSITE SOLID PROPELLANTS CONTAINING AL/FE AND AL/B POWDERS**
A. Korotkikh, I. Sorokikh, E. Selikhova
Tomsk Polytechnic University, Tomsk, RUS
V. Arkhipov
Tomsk State University, Tomsk, RUS

- P 53 EXPERIMENTAL AND THEORETICAL INVESTIGATION ON Ti(NN)_x (x = 1 ~6) COMPLEXES**
Hae-Wook Yoo, Soo Gyeong Cho
Agency for Defense Development, Daejeon, ROK
Changhyeok Choi, Yousung Jung
Korea Advanced Institute of Science and Technology, Daejeon, ROK
Myong Yong Choi
Gyeongsang National University, Jinju, ROK
- P 54 STUDY ON THE APPLICATION OF MAGNESIUM POWDER IN LOW-BURNING-RATE NEPE PROPELLANT**
Yin Xin-Mei, Chai Yu-Ping, Tang Quan, Wang Xiao-Ying
Hubei Institute of Aerospace Chemotechnology, Xiangyang, PRC
- P 55 SIGNIFICANTLY ENHANCED THERMAL DECOMPOSITION PROPERTIES OF CL-20 BASED ON THREE-DIMENSIONAL HIERARCHICALLY ORDERED POROUS CARBON**
Jin Chen, Hui Huang
Institute of Chemical Materials CAEP, Mianyang, PRC /
Nanjing University of Science and Technology, Nanjing, PRC
Simin He, Bin Huang, Guangcheng Yang
Institute of Chemical Materials CAEP, Mianyang, PRC
- P 56 STUDY ON SILICONE RUBBER INSULATION MATERIAL OF RAMJET MOTOR**
Chih-Kai Liang, Chi-Fa Hsieh, Yu-Tse Lin
National Chung-Shan Institute of Science and Technology,
Longtan Dist., ROC
- P 57 GAS INCLUSION CO-CRYSTAL OF HEXANITROHEXAAZAISOWURTZITANE WITH THE INCORPORATION OF NITROUS OXIDE TOWARD HIGH-PERFORMANCE INSENSITIVE ENERGETIC MATERIALS**
Jinjiang Xu, Jie Sun, Yong Tian, Yu Liu, Haobin Zhang
Institute of Chemical Materials CAEP, Mianyang, PRC
- P 58 EFFECT OF INSULATION LAYER ON THE INTERFACIAL BONDING PROPERTY**
Yin Huali, Li Dongfeng, Huang Hailong, Wang Yu, Sang Lipeng
Hubei Institute of Aerospace Chemotechnology, Xiangyang, PRC
- P 59 COMBUSTION IN CONFINED EXPLOSIVE CRACKS UNDER NON-SHOCK INITIATION**
Shang Hailin, Yang Jie, Huang Xueyi, Li Tao, Hu Haibo
Institute of Fluid Physics CAEP, Mianyang, PRC
- P 60 INVESTIGATION OF THE MICROSTRUCTURE OF ADN-PRILLS USING 2D-X-RAY DIFFRACTION**
P.B. Kempa, H. Fietzek, M. Herrmann, T. Heintz
Fraunhofer ICT, Pfinztal, D

- P 61 SYNTHESIS AND CHARACTERIZATION OF NEW INSENSITIVE EXPLOSIVES BASED ON 1,2-DIAZINES**
I. Gospodinov, T. Klapötke, J. Stiersdorfer
University of Munich (LMU), München, D
- P 62 PREPARATION OF SHEET-ON-SHEET STRUCTURED GRAPHITIC CARBON NITRIDE/REDUCED GRAPHENE OXIDE/LAYERED MnO₂ TERNARY NANOCOMPOSITE WITH OUTSTANDING CATALYTIC PROPERTIES ON THERMAL DECOMPOSITION OF AMMONIUM PERCHLORATE**
Jianhua Xu, Linghua Tan, Haifeng Zhao, Jing Lv
Nanjing University of Science and Technology, Nanjing, PRC
- P 63 PREPARATION AND CHARACTERIZATION OF INSENSITIVE AMMONIUM PERCHLORATE/GRAPHITE**
Guo Xiao-De, Li Guang-Chao
Nanjing University of Science and Technology, Nanjing, PRC
- P 64 REACTIVE CRACKS AND PRESSURIZATION OF A PRESSED HMX-BASED PBX UNDER HIGH CONFINEMENT**
Li Tao, Guo Yingwen, Fu Hua, Shang Hailin, Hu Haibo
Institute of Fluid Physics CAEP, Mianyang, PRC
Wen Shanggang
Institute of Chemical Materials CAEP, Mianyang, PRC
- P 65 THERMAL DECOMPOSITION OF SUBSTITUTED gem-DINITRO ACETALS UNDER NON-ISOTHERMAL CONDITIONS**
L.A. Kruglyakova, R.S. Stepanov
Siberian State University of Science and Technology, Krasnoyarsk, RUS
- P 66 SYNTHESIS OF CHELATED TITANATE MODIFIERS AND ITS APPLICATION STUDY**
Hongxiu Zhang, Xiong Zang, Li Dai
Yingkou Tanyun Chemical Research Institute Ltd., Yingkou Liaoning, PRC
- P 67 RESEARCH ON UNDERWATER EXPLOSION NEAR-FIELD SHOCK CHARACTERISTICS OF TNT**
Wang Bin, Li Jin-He, Wang Yan-Ping
Institute of Fluid Physics CAEP, Mianyang, PRC
- P 68 DEFORMATION WITH DAMAGE AND TEMPERATURE-RISE OF PBXS UNDER UNIAXIAL COMPRESSION**
Yanping Wang, Tao Li, Fu Hua, Li Kewu
Institute of Fluid Physics CAEP, Mianyang, PRC
- P 69 SUSTAINABLE HIGH INTENSITY DEEP RED FLARE FORMULATIONS**
E.-C. Koch
Lutradyn – Energetic Materials Science & Technology Consulting,
Kaiserslautern, D

- P 70 ORGANIC AEROSOL IN COAL MINES: MECHANISM OF FORMATION AND ITS INFLUENCE ON THE EXPLOSION HAZARD OF THE METHANE-AIR GAS MIXTURES**
S.V. Valiulin, A.A. Onischuk, V.V. Zamashchikov, A.M. Baklanov, S.N. Dubtsov, P.V. Koshlyakov, P.S. Mazunina
Voevodsky Institute of Chemical Kinetics and Combustion SB RAS, Novosibirsk, RUS
- P 71 PERFORMANCE EVALUATION OF A CASTABLE THERMOBARIC EXPLOSIVE**
Z. Taner Kaya, T. Yücel, M. Sarper Yavuz, G.A. Yilmaz, D. Cetin
TÜBITAK SAGE, Ankara, TR
- P 72 THE EFFECT OF EXPLOSIVE INTERVAL WITH OR WITHOUT CONSTRAINT ON CONFUSED DETONATING FUSE (CDF) DETONATION VELOCITY**
Qing Zhou, Yi Li
Institute of Chemical Materials CAEP, Mianyang, PRC
- P 73 SIMULATION OF THERMAL RESPONSE OF THE HOT BRIDGE-WIRE ELECTRO-EXPLOSIVE DEVICE WITH B/KNO₃ IGNITION POWDER**
Zhang Weiyao, Tu Xiaozhen, Zhou Meilin
Institute of Chemical Materials CAEP, Mianyang, PRC
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Agency for Defense Development ADD, Daejeon, ROK

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O.G. Glotov, G.S. Surodin, V.E. Zarko
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M.A. Korchagin
Institute of Solid State Chemistry and Mechanochemistry RAS,
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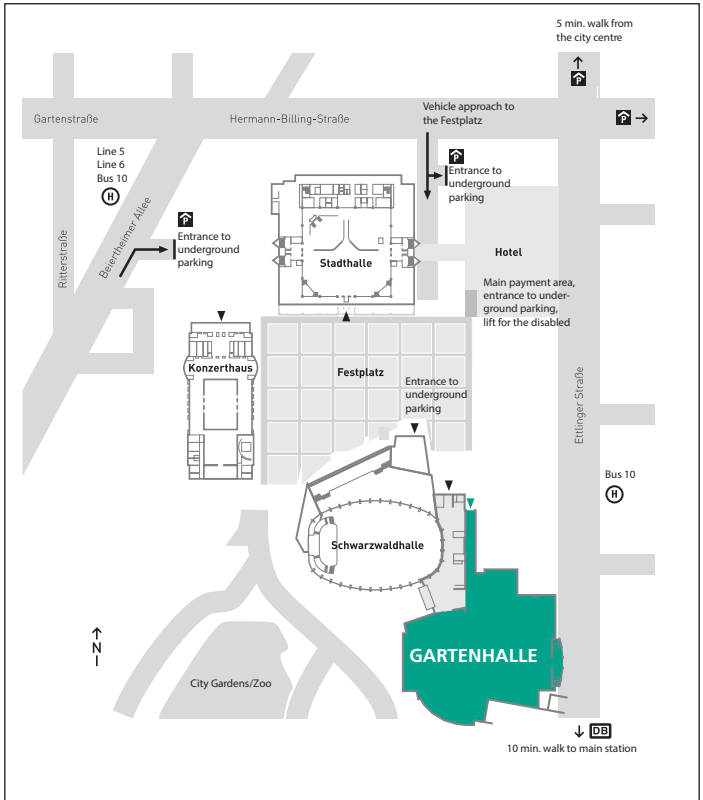
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Defence R&D Canada, Quebec, CAN
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Junhyung Kim, Cheongah Go, Seungwon Ko, Byungtae Ryu
Agency for Defense Development, Daejeon, ROK

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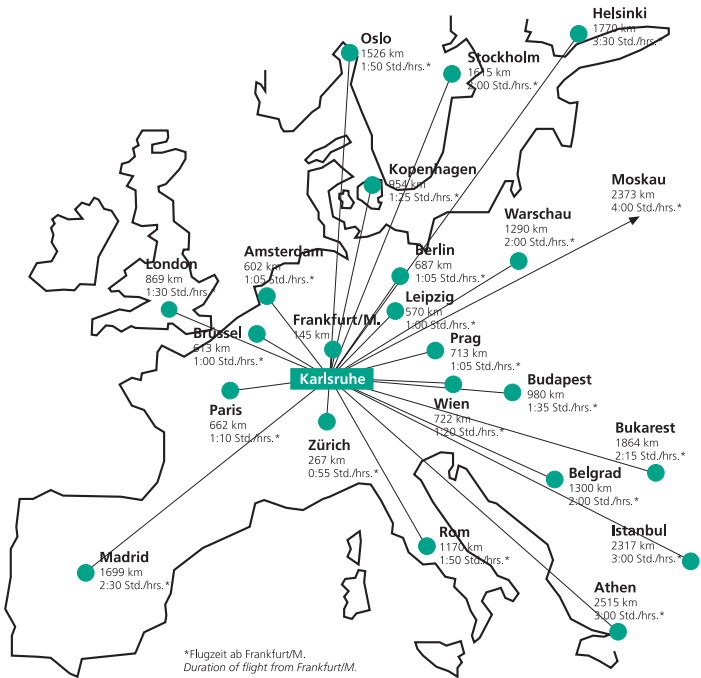
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