

Program

40th International Annual Conference of ICT
June 23 - June 26, 2009

Karlsruhe
Federal Republic of Germany

Energetic Materials

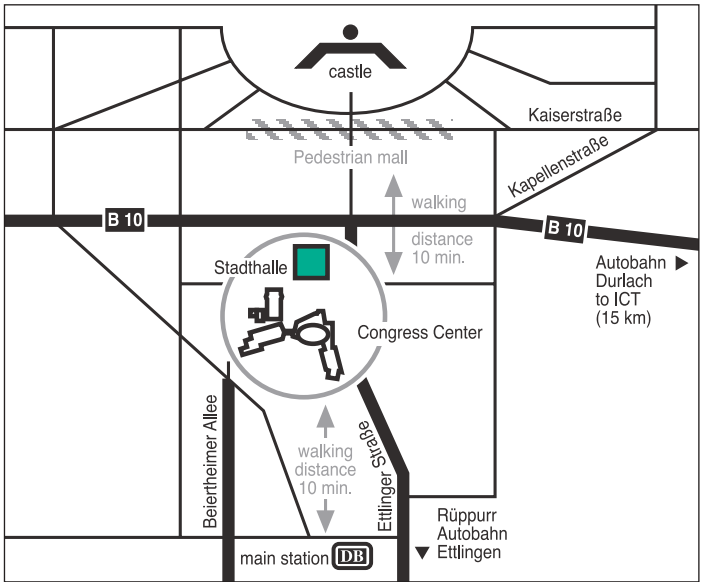
Characterisation,
Modelling and
Validation



Fraunhofer Institut
Chemische Technologie

Karlsruhe City Plan

How to find the venue



Karlsruhe liegt 120 km südlich vom Frankfurter Flughafen an der Autobahn A5 und ist von Frankfurt aus mit dem Intercity oder dem ICE leicht zu erreichen.

Weitere Flughäfen sind:

Strasbourg (F) (ungefähr 100 km) und Stuttgart (D) (ungefähr 90 km)

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

Additional airports are:

Strasbourg (F) (approx. 100 km) and Stuttgart (D) (approx. 90 km)

40th International Annual Conference of ICT

Energetic Materials -

Characterisation, Modelling and Validation

Due to new and changing applications modern energetic materials and compositions have to fulfil sophisticated and even opposite features regarding to performance, sensitivity, vulnerability and stability. Therefore, the validation of the resulting reaction properties needs new or refined diagnostic methods.

Advanced experimental characterisation of combustion, deflagration or detonation properties of propellants, explosives, pyrotechnics and their combinations deliver the basis for understanding the reaction processes and the overall performance. Besides high time resolution diagnostic tools also need a fine spatial accuracy so that spherical or even volumetric information of the reaction zone can be achieved essential to understand the complex physical and chemical interactions.

Sophisticated experimental designs and measurement techniques must be combined to extract the necessary information from the system. Modelling of combustion, detonation and reaction phenomena helps to understand the occurring effects and to analyse the experimental data.

Finally, the combination of all these tools allows the validation of the proposed characteristics of modern designed energetic materials.

The 40th International Annual Conference of ICT shall provide a platform to review the state of the art of nowadays energetic material research concerning characterisation, modelling and validation and act as an international forum to present new ideas and to stimulate the scientific discussion process in the defence research community.

Chair of the Conference

Wilhelm Eckl, Fraunhofer ICT

General Information

Registration

Please return the enclosed registration form.

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

- Registration up to **June 2nd**:
EURO 1.050,-- (incl. 19% VAT)
- Registration up to **June 15th**:
EURO 1.250,-- (incl. 19% VAT)

Participation cannot be guaranteed for registrations arriving after June 15th.

The fee has to be paid **upon receipt of the invoice** either by

- remittance to the account given on the invoice
or
- cheque

Cancellation Policy

EURO 400,-- will be charged for cancellations after **June 15th, 2009**.
No-shows will be charged with **EURO 800,--**.

Accommodation

HORE Hotel Reservation, Weingartener Str. 70, 76229 Karlsruhe

Phone +49-(0)7 21/ 48 23 56
Telefax +49-(0)7 21/ 48 26 14
e-mail HoreHotelReservation@t-online.de

An application form is enclosed.

Conference Office

Foyer of the Weinbrenner-Saal.
Open from Tuesday, June 23, 14.00 h till Friday, June 26, 14.00 h **during the actual time of the lectures** and may be reached by

Phone +49-(0)7 21 / 37 20 – 57 80
or +49-(0)7 21 / 37 20 – 57 81
Fax +49-(0)7 21 / 37 20 – 59 50

Check in / Welcome Reception

Please check in at the conference office on **Tuesday, June 23, between 14.00 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 Stadthalle.

Conference Languages

English, German (Simultaneous Interpretation)

Proceedings

One copy is included in the registration fee. Additional copies cost **EURO 99,--** (Subscription price during the conference EURO 79,--).

Tour of the Institute

The ICT can be visited on **Friday, June 26** at the end of the Conference. The tour of the Institute is followed by a **farewell-party** with draught beer, barbecue and fireworks (after sunset). Please **mark on your registration form** whether you wish to participate.

Allgemeine Informationen

Anmeldung

Bitte schicken Sie beiliegendes Anmeldeformular zurück. Die Tagungsgebühr incl. 19% MWSt (incl. Proceedings, Kaffeepausen, Mittagsbuffet) beträgt

- **EURO 1.050,-- bei Eingang der Anmeldung bis 2. Juni 2009**
- **EURO 1.250,-- bei Eingang der Anmeldung bis 15. Juni 2009**

und muss **nach Erhalt der Rechnung** beglichen werden durch entweder

- Überweisung auf das auf der Rechnung angegebene Konto oder
- Übersendung eines Verrechnungsschecks

Stornierungen

Für Stornierungen nach dem **15. Juni 2009** müssen wir **EURO 400,--** erheben.

Bei **Nichterscheinen** ohne Stornierung wird ein Betrag in Höhe von **EURO 800,--** fällig.

Zimmerreservierung

Bitte wenden Sie sich an **HORE Hotel Reservation**, Weingartener Str. 70, 76229 Karlsruhe,

Telefon (07 21) 48 23 56
Telefax (07 21) 48 26 14
e-mail HoreHotelReservation@t-online.de

Antwortkarte anbei.

Tagungsbüro

Das Tagungsbüro befindet sich im **Foyer des Weinbrenner-Saals**. Es wird von Dienstag, 23. Juni, 14.00 h bis Freitag, 26. Juni, 14.00 h **während der Kongresszeiten** geöffnet sein und kann erreicht werden unter

Telefon (07 21) 37 20 - 57 80
oder (07 21) 37 20 - 57 81
Fax (07 21) 37 20 - 59 50

Registrierung / Empfang

Bitte melden Sie sich am **Dienstag, 23. Juni 2009** in der Zeit von **14.00 h bis 20.00 h** im Tagungsbüro an. Alle Teilnehmer sind an diesem Tag herzlich zum **Empfang** im Foyer der Stadthalle eingeladen, Beginn **18.00 h**.

Konferenzsprachen

Deutsch, Englisch (Simultanübersetzung)

Proceedings

Ein Exemplar ist in der Tagungsgebühr enthalten. Zusätzliche Tagungsberichte kosten **EURO 99,--** (Subskriptionspreis während der Tagung EURO 79,--).

Besichtigung des Instituts

Am **Freitag, 26 Juni**, nach Abschluss der Tagung, können Sie das Institut besichtigen; zum Ausklang gibt es eine **»Abschlussparty«** mit Fassbier, Grilladen und, nach Sonnenuntergang, einem Feuerwerk.

Bitte **vermerken Sie Ihre Teilnahme auf dem Anmeldeformular**.

- 9.00 **Welcome Address and Opening**
- 9.20 **V 0** **Keynote Lecture**
Review – Contributions along 40 years of
ICT's Annual Conferences
- M. Held
TDW, Schrobenhausen, D
- 1. Session Modelling**
Chairman: S. Wilker
BWB, Koblenz, D
- 9.40 **V 1** **EMC 3.6 Energetic Materials Compendium –**
A Tool for Research, Development and Design
- E.-C. Koch
NATO-MSIAC, Brussels, B
- 10.00 **V 2** **A QSAR Model for Predicting Solvents and**
Solvent Blends for Energetic Materials
- D.L. Williams, K.D. Kuklenz
Sam Houston State University, Huntsville, USA
- 10.20 **V 3** **Prediction of the Thermal Behaviour of**
Energetic Materials by Advanced Kinetic
Modelling of HFC and DSC Signals
- B. Roduit
AKTS AG, Siders, CH
P. Folly, A. Sarbach, B. Berger
armasuisse, Thun, CH
- 10.40 **V 4** **Modeling the Shock Initiation of Thermally-**
Damaged LX-04 with a Statistical Hotspot
Model
- H. Keo Springer, S.K. Chidester, J.L. Maienschein,
A.L. Nichols III, C.M. Tarver, K.S. Vandersall
Lawrence Livermore National Laboratory,
Livermore, USA
- 11.00 **Coffee Break**

2. Session Ageing of PBX

Chairman: H. Östmark
FOI, Tumba, SE

- 11.30 **V 5** **Inhomogeneous Ageing of a PBX**

S. Torry, M. Ashcroft, A. Rix, T. Cunliffe, D. Tod
QinetiQ Fort Halstead, Sevenoaks, GB
- 11.50 **V 6** **Safety, Mechanical and Chemical Properties of a HMX Based Plastic Bonded Explosive after Ageing**

M. Kaiser, M. Koch, R. Wild
WIWEB, Swisttal, D
- 12.10 **V 7** **Characterization of the Ageing of HTPB Binder Based Insensitive High Explosive Charge by Heat Flow Microcalorimetry, Chemiluminescence, GAP Test and Dynamic Mechanical Analysis**

M.A. Bohn
Fraunhofer ICT, Pfinztal, D
- 12.30 **V 8** **Ageing Study on the Polymer Bonded Explosive KS-32; one Part of the Research from a 3-Nation's Cooperation**

M. van Hulst, W.P.C. de Klerk
TNO DSS, Rijswijk, NL
- 12.50 **Lunch Break**

3. Session Combustion and Ignition

Chair: B. Berger
armasuisse, Thun, CH

- 14.20 **V 9** **Experimental Studies on the Ablation and Ignition of Gun Propellants in a 155mm Gun**
- S. Fuller, M. Taylor
QinetiQ Fort Halstead, Sevenoaks, GB
- 14.40 **V 10** **Study of Kinetics of Combustion of Energetic Materials by Electrothermal Explosion Method**
- A.S. Shteinberg
ALOFT, Berkeley, USA
- 15.00 **V 11** **Experimental and Numerical Study on Nonsteady Burning of Solid Propellants**
- G. Fouin, S. Gallier
SNPE, Vert le Petit, F
- 15.20 **V 12** **Fluidised Bed Incineration of Nitrophenol**
- J. Campos, J. Gois
University of Coimbra, P
P. Araujo
CUF-Quimicos Industrias S.A., Estarreja, P
L. Duraes, A. Portugal
LEDAP, Condeixa, P
- 15.40 **V 13** **Pyrotechnic Incendiaries to Combat Toxic Clouds**
- V. Weiser, E. Roth, S. Kelzenberg, W. Eckl
Fraunhofer ICT, Pfinztal, D
- 16.00 **Coffee Break**

4. Session Explosives I

Chairman: R. Simpson
Lawrence Livermore National Laboratory,
Livermore, USA

- 16.30 **V 14** **Determination of Polymer Content in PBX Composition by FT-IR**
- E. da Costa Mattos, E.D. Moreira,
R.C. Lazzarini Dutra, M.F. Diniz, G. da Silva
CTA/IAE, Sao Jose dos Campos, BR
- 16.50 **V 15** **Measurement of the Flow Properties Within a Copper Tube Containing a Deflagrating High Explosive**
- L.G. Hill, J.S. Morris, S.I. Jackson
Los Alamos National Laboratory, Los Alamos,
USA
- 17.10 **V 16** **Modeling of Transient Detonations in Insensitive High Explosives**
- P. Vitello, C. Souers, T. Lorenz
Lawrence Livermore National Laboratory,
Livermore, USA

5. Session Explosives II
Chairman: H. Keizers
TNO, Rijswijk, NL

9.00 **V 17** **Shock Sensitivity of Diaminoazoxy Furazan (DAAF) Using an Instrumented Small Scale Gap Test**

E. Francois, V.E. Sanders, J. Lloyd, J. Mang
Los Alamos National Laboratory, Los Alamos,
USA

9.20 **V 18** **Investigation of Physical-Chemical Processes Related to the Abel Heat Test of Explosives**

B. Vogelsanger, R. Sopranetti
Nitrochemie Wimmis AG, Wimmis, CH

9.40 **V 19** **Towards Next Generation TATB-based Explosives by Understanding Voids and Microstructure from 10 nm to 1 cm**

T.M. Willey, L. Lauderbach, D.M. Hoffman,
T. van Buuren, G. Overturf
Lawrence Livermore National Laboratory,
Livermore, USA
J. Ilavsky
Argonne National Laboratory, Argonne, USA

10.00 **Coffee Break**

10.30 **Session Poster**
chaired by: R. Belmas
CEA, Monts, F

12.00 **Lunch Break**

6. Session Processing

Chairman: A.S.Cumming

DSTL Fort Halstead, Sevenoaks, GB

- 13.30 **V 20** **Simulation of Dry Coating Process through Distinct Element Modeling**
- G. Gogos, P. Wang
New Jersey Institute of Technology, Newark, USA
P. Bonnett, F. Lee
RDECOM-RDEC, Picatinny Arsenal, USA
- 13.50 **V 21** **Characterisation and 3D Flow Modelling of Propellant Pate in Mixing Equipments**
- T. Praud, C. Marraud, G. Chounet
SNPE, Vert le Petit, F
- 14.10 **V 22** **New Fluidized Bed Reactor for Coating of Energetic Materials**
- E. Abadjieva, T. Huijser, Y. Creyghton,
A. van der Heijden
TNO DSS, Rijswijk, NL
- 14.30 **V 23** **Fast and Save Production of Liquid Explosives in a Continuous Pilot Plant Employing Microreaction Technology**
- D. Boskovic, A. Mendl, T. Türcke, S. Löbbecke
Fraunhofer ICT, Pfinztal, D
- 14.50 **V 24** **ADN Prills: Production, Characterisation and Formulation**
- C. Eldsäter, J. de Flon, E. Holmgren, M. Liljedahl,
A. Pettersson, M. Wanhatalo, N. Wingborg
FOI, Tumba, SE
- 15.10 **Coffee Break**

7. Session Propellants and Gasgenerators I

Chairman: B. Vogelsanger

Nitrochemie Wimmis, Wimmis, CH

15.40

V 25**Solid Hydrogen Storage: Hydride Based Compositions for Gaseous Hydrogen Generation**C. Vella, J. Renouard, J.P. Goudon, P. Yvart
SNPE, Vert le Petit, F

16.00

V 26**Hydrogen Generation in Systems
"Aluminum Nanopowder – Water"**A.B. Vorozhtsov
Institute for Problems of Chemical and Energetic
Technologies, Biysk, RUS
A.A. Gromov
Tomsk Polytechnic University, Tomsk, RUS

16.20

V 27**Measurement of Gas Production from a
Nitramine Based Rocket Propellant**R. Tunnell, T. Cunliffe, K. Rawley, A. Rix, D. Tod
QinetiQ Fort Halstead, Sevenoaks, GB

16.40

V 28**Fracture of Case Bonded Grains in Cold
Pressurisation Motor Tests**R. Neviere
SME, Vert le Petit, F
L. Tixier
ROXEL, Saint Medard en Jalles, F

17.00

V 29**On the Solid-State Decomposition of
Ammonium Dinitramide**M. Rahm, M. Johnson, E. Tyrode, T. Brinck,
Royal Institute of Technology KTH, Stockholm,
SE

8. Session Propellants and Gasgenerators II

Chairman: C. Perut
SNPE, Vert-le-Petit, F

- 9.00 **V 30** **Catalytic Effects of Cu and Cu-based Compound Additives on the Combustion/Decomposition Characteristics of Guanidinium 1,5'-bis-1H-Tetrazolate/Ammonium Nitrate Mixtures**
- S. Date, S. Nishi, Y. Miyata, M. Abe,
K. Yoshitake, K. Hasue
National Defense Academy, Yokosuka
Kanagawa, JAP
- 9.20 **V 31** **A Stable Liquid Mono Propellant Based on ADN**
- K. Anflo, P. Thormählen
ECAPS, SE
H. Skifs, P. Sjöberg
Eurenco Bofors AB, Karlskoga, SE
- 9.40 **V 32** **Size/Strain Diffraction Peak Broadening of the Energetic Materials HMX, CL-20 and FOX-12**
- M. Herrmann, U. Förter-Barth, P.B. Kempa
Fraunhofer ICT, Pfinztal, D
- 10.00 **Poster Awards**

9. Session SIBEX I

Chairman: P. Wanninger
Rheinmetall Waffe Munition GmbH, Unterlüß, D

10.10 **V 33** **Discovery and Validation of Explosive Fumes Dynamics in Rooms**

H.-J. Fahl
WTD 91, Meppen, D
M. Hunzinger
Fraunhofer EMI, Kandern, D

10.30 **V 34** **Oxidation of Aluminum Particles in Mixed O₂/CO₂/H₂O Atmospheres**

M. Schoenitz, C.-M. Chen, X. Zhu, E.L. Dreizin
New Jersey Institute of Technology, Newark, USA

10.50 **V 35** **Investigation on the Behaviour of Solid Particles during their Dispersion by High Explosive**

Y. Gregoire, M.-O. Sturtzer
ISL, Saint Louis, F
B.A. Khasainov, B. Veyssiere
Laboratoire de Combustion et de Detonique,
Futuroscope, F

11.10 **Coffee Break**

10. Session SIBEX II

Chairman: P. Brousseau
DRDC Valcartier, Val-Belair, CAN

- 11.30 **V 36** **Characteristics of Metal Combustion Obtained from Constant Volume Explosion Experiments**
- P.R. Santhanam, V.K. Hoffmann, M.A. Trunov,
E.L. Dreizin
New Jersey Institute of Technology, Newark, USA
- 11.50 **V 37** **Combustion of Boron Loaded Explosives**
- W. Arnold
TDW, Schrobenhausen, D
E. Rottenkolber
NUMERICS GmbH, Petershausen, D
- 12.10 **V 38** **Thermodynamic States of C4 Explosions and their Combustion with Air**
- A.L. Kuhl
Lawrence Livermore National Laboratory,
Livermore, USA
- 12.30 **V 39** **Characterisation of Explosives with Enhanced Blast Output in Detonation Chamber and Free Field Experiments**
- T. Fischer, A. Kessler, P. Gerber, V. Weiser,
T. Klahn
Fraunhofer ICT, Pfinztal, D
- 12.50 **Closing Remarks**
- 13.00 **Lunch**
- 14.30 **Bus Departure from the Conference Hall to the ICT**
- 15.00 **Visit of the ICT followed by a farewell-party offering draught beer, barbecue and fireworks. Bus transfer to Karlsruhe City and Main Station will be available during the whole evening.**
- For sponsoring the fireworks we'd like to thank ZINK-Feuerwerk GmbH, D-74389 Cleebronn**

Poster Program

Posters will be presented during the whole Conference. A special Poster Session will take place on **Thursday, June 25, 10.30 - 12.00 h**. During this time authors should be present for discussion at their posters in the foyer of the Conference Hall.

- P 40** **Crystal Structure and Thermal Behavior of FOX-12**
- P.B. Kempa, M. Herrmann, I. Fuhr
Fraunhofer ICT, Pfinztal, D
H. Östmark
FOI, Tumba, SE
- P 41** **Effect of Some Burning Rate Modifiers on the Burning Behaviour of Extruded Double Base Propellants**
- M. Hadhoud, M. Elian
Ministry of Military Production, Cairo, ET
A. Abd-Elghafour, S. El-Basuney
Egyptian Armed Forces, Cairo, ET
- P 42** **Spectrally and Spatially Adapted Decoy Flares Based on Red Phosphorus**
- E.A. Hawas, E.H. Mostafa, M.M. Ismail
Egyptian Armed Forces, Cairo, ET
- P 43** **US Navy Qualification of Pyrotechnics from a European Grenade – A Cooperative Venture**
- M.P. McDonnell, S.T. Peters
NSWC, Indian Head, USA
- P 44** **Characterization of the Nitroguanidine in M30 Triple-Base Propellants: Influence of the Process Parameters in Nitroguanidine Alignment**
- C. Gonzalez, G. Ballester
GD SBS, Madrid, E
M.A. Rodriguez
Ceramic and Glass Institute, Madrid, E
- P 45** **Synthesis of a Boron Modified Phenolic Resin**
- A.M. Kawamoto, L.C. Pardini, M.F. Diniz, V.L. Lourenco,
M.F. Koyama Takahashi
CTA/IAE, Sao Jose dos Campos SP, BR
- P 46** **NIR Spectroscopy for Amine Characterization in Bonding Agents Used in Solid Propellants**
- D. Cortes Pires, J. Sciamareli, A. Kawamoto, K. Iha,
M. Faria Diniz, J.R. da Costa, E. da Costa Mattos,
R. de Cassia Lazzarini Dutra
CTA/IAE, Sao Jose dos Campos, BR

Poster Program

- P 47** **The Heterogeneous Mechanism of Lead Azide Thermal Decomposition**
- A. Khaneft
Kemerovo State University, Kemerovo, RUS
- P 48** **The Modeling of Initiation by PETN Laser Pulse**
- A. Khaneft, E. Duginov
Kemerovo State University, Kemerovo, RUS
- P 49** **Rheological Investigations of Fluid PBX-Precursors**
- U. Förter-Barth, M. Herrmann, P. Gerber
Fraunhofer ICT, Pfinztal, D
- P 50** **Synthesis and Characterization of NTO and its Salts**
- T.Z. Wafy, M.A. Sadek, M.S. Fayed, M.M. Ismail
Egyptian Armed Forces, Cairo, ET
- P 51** **Simulation Particle Milling and Coating Using EDEM and FLUENT**
- G. Gogos, P. Wang, S. Teng
New Jersey Institute of Technology, Newark, USA
J. Palk, F. Lee
ARDEC, Picatinny Arsenal, USA
- P 52** **Development of the Solid Propellant for Kick Motor and Verification of Performance in High-Altitude Simulation**
- Jong-Kwon Song, Jong-Woong Won, Sung-Han Choi,
Hyuk Suh
Hanwha Corp., Daejeon, ROK
- P 53** **Synthesis of Glycidyl dinitroazetidine (GDNAZ) as an Energetic Monomers Containing Explosophoric Group**
- Jin Seuk Kim, Hyunsoo Kim, Younghwan Kwon
Agency for Defense Development, Daejeon, ROK
- P 54** **A Study of Applying the SPH Methods to Calculate the Detonation Process of the High Explosives**
- Yang Kun, Pan Hao, Wu Zi-Hui, Hu Xiao-Mian
Institute of Applied Physics and Computational Mathematics,
Beijing, PRC

Poster Program

- P 55** **Numerical Simulation of the Detonation Process of Cracked High Explosives with Different Width Air Gap**
- Pan Hao, Wu Zi-Hui, Hu Xiao-Mian
Institute of Applied Physics and Computational Mathematics,
Beijing, PRC
- P 56** **Brazilian Disc Testing of a UK PBX: Experiment and Modelling**
- C. Leppard, G. Kalsi
AWE Aldermaston, Reading, GB
D.M. Williamson, W.G. Proud
University of Cambridge, GB
- P 57** **ESD Sensitivity Evaluation of the Secondary Explosives – Discharge Firing Circuit of the ESD Tester Efficiency**
- J. Majzlik
University of Pardubice, CZ
- P 58** **New Suggestions and Modifications in the Extraction, Analysis and Detection of Eight Organic Post Explosion Traces**
- A.M. Naser, A.H. Bedair, M.M. Ismail, M.K. Hadhoud,
A.M. Bendary
Ministry of Justice / Egyptian Armed Forces, Cairo, ET
- P 59** **Modification of Ultrafine HNS Explosive by Spray Drying Process**
- Jingyu Wang, Wenzheng Xu
North University of China, Taiyuan, PRC
Hao Huang
Beijing Institute of Technology, Beijing, PRC
- P 60** **Ageing of Flattened Spherical Propellants: Comparison between a Propellant Deterred with Dibuthylphthalate and a Propellant Deterred with an Alternative Phthalate**
- L. Jeunieau, M.H. Lefebvre
Ecole Royale Militaire, Bruxelles, B
P. Guillaume
PB Clermont SA, Engis, B

Poster Program

- P 61** **A Study on the Reaction Rate of Insensitive Explosives**
- Jungsu Park, Jaimin Lee, Jinsung Lee
Agency for Defense Development, Daejeon, ROK
Sungkie Youn
Korea Advanced Institute of Science and Technology, ROK
- P 62** **Numerical Simulation of Afterburning Process in Thermobaric Explosives**
- Chang-Kee Kim
Agency for Defense Development, Daejeon, ROK
Kyoung-Su Im
Livermore Software Technology Corp., Livermore, USA
- P 63** **A Parametric Study into the Thermal Properties of Copper (II) Styphnate Tetrahydrate Using Single Crystal X-Ray Diffraction**
- A.L. Collins, J.M. Cole, T.J.P. Angliss, W.G. Proud
Cavendish Laboratory, Cambridge, GB
- P 64** **Characterization of Explosive Mixtures Based on Composition B**
- S.A. El-Basuony, H.E. Mostafa, M.M. Seleet
Egyptian Armed Forces, Cairo, ET
- P 65** **Effect of the Boiling Process on the Physical Properties of Nitrocellulose**
- Zheng Wenfang, Pan Renming, Cheng Zhanbing, Fu Xiaoli, Lin Xiangyang
Nanjing University of Science & Technology, Nanjing, PRC
- P 66** **Determination of the Ballistic Lifetime of 27 mm Ammunition DM63 Accompanied by Real Life Time Temperature Storage Measurements**
- S. Wilker,
BWB, Koblenz, D
U. Ticmanis
WIWEB, Swisttal, D
U. Stenzel
RWM Mauser, D
B. Vogelsanger
Nitrochemie Wimmis AG, Wimmis, CH

Poster Program

- P 67** **Progress in Initiator Modeling**
- C.A. Hrousis, J.S. Christensen
Lawrence Livermore National Laboratory, Livermore, USA
- P 68** **Probabilistic Shock Initiation Thresholds and QMU Applications**
- C.A. Hrousis, M. Gresshoff, G.E. Overturf III
Lawrence Livermore National Laboratory, Livermore, USA
- P 69** **Software Package Development for the Computation of Activation Energy Using Iterative Method and Integration Technique**
- H. Muthurajan, Ang How Ghee
Nanyang Technological University, SGP
- P 70** **Development of an IM Substitute Candidate for Composition A3**
- G. Eck, C. Spyckerelle
Eurenco France, Sorgues, F
- P 71** **GUNTOL – Melt Cast for IM**
- A.-M. Amneus, P. Sjöberg
Eurenco Bofors AB, Karlskoga, SE
R. Kinell
Nammo LIAB AB, Lindesberg, SE
H. Östmark
FOI, Tumba, SE
- P 72** **A Volumetric Constitutive Model for Composite Propellants and its Experimental Validation**
- R. Neviere
SNPE, Vert le Petit, F
- P 73** **Study on the Inclusion and Defect in Cooling Crystallization of RDX**
- Doo-Yong Kim, Kwang-Joo Kim
Hanbat National University, Yuseong Daejeon, KOR
Hyoun-Soo Kim
Agency for Defense Development, Daejeon, KOR

Poster Program

- P 74 Instationary Theory of Heat Explosion**
- G. Krause
Dr. Krause GmbH, Potsdam, D
- P 75 Kinetic and Material Parameters for Various Explosives
by Hot Storage Tests**
- G. Krause
Dr. Krause GmbH, Potsdam, D
- P 76 Aging Evaluations of RS-RDX and PBX Formulations
based on RS-RDX**
- S. Matsuzaki, Y. Fujigaki, Y. Kato
Nippon Koki Co. Ltd., Fukushima, JAP
- P 77 Ageing Behaviour of HTPB based Rocket Propellant
Formulations**
- S. Cerri, L. Galfetti
Politecnico di Milano, I
M.A. Bohn, K. Menke
Fraunhofer ICT, Pfinztal, D
- P 78 Prediction of Equivalent Time-Temperature Loads for
Accelerated Ageing to Simulate Preset In-Storage
Ageing and Time-Temperature Profile Loads**
- M.A. Bohn
Fraunhofer ICT, Pfinztal, D
- P 79 Quantum Chemical Calculations on 2-Nitro-N-Nitroso-
Alkylanilines and 4-Nitro-N-Nitroso-Alkylanilines –
Contribution to Clarify recently described unexpected
Behaviour**
- M.A. Bohn
Fraunhofer ICT, Pfinztal, D
- P 80 Gel Permeation Chromatography of Nitrocellulose (NC)
and NC Containing Substances
III. Recent Results from a Continued Parameter Study on
the GPC of NC Samples**
- H. Pontius, M. Dörich, M.A. Bohn
Fraunhofer ICT, Pfinztal, D

Poster Program

- P 81** **An Update on the Round Robin Test to Evaluate the Nitrocellulose Size Exclusion Chromatography Method in STANAG 4178 (Ed. 2)**
- P. Deacon, A. Macdonald
AWE plc, Aldermaston, GB
P. Gill, N. Mai
Cranfield University, Shrivenham, GB
M. Bohn, H. Pontius
Fraunhofer ICT, Pfinztal, D
M. van Hulst, W. de Klerk
TNO, Rijswijk, NL
C. Baker
DOSG-MOD, Abbey Wood, GB
- P 82** **Effect of RS-HMX on the Properties of Pressable PBX Composition**
- Liu Shijun, Nie Fude, Zhan Chunhong, Huang Ming
Institute of Chemical Materials CAEP, Mianyang, PRC
- P 83** **Safety Simulation – Prediction of Explosives Behaviour under Thermal Stress Based on Explosive Data from Laboratory Experiments**
- M. Koch, U. Ticmanis, S. Wilker
WIWEB, Swisttal, D
- P 84** **A New Initiation Explosive Based on Superfine ANBDF**
- Liu Yong-gang, Wang Ping, Hang Yueqiang, Nie Fude, Li Jinshan, Huang Hui
Chinese Academy of Engineering and Physics, Mianyang, PRC
- P 85** **Lidar Detector of Explosive Vapors**
- S. Bobrovnikov, E. Gorlov, Y. Panchenko, G. Sakovich, A. Vorozhtsov, E. Maximov
Institute for Problems of Chemical & Energetic Technologies, RUS
Institute of Atmospheric Optics, RUS
Institute of High Current Electronics, RUS
- P 86** **Detonation Parameters of Resorcinol-Formaldehyde/NH₄ClO₄ Nanocomposites**
- S. Cudzilo, W.A. Trzcinski, W. Kicinski
Military University of Technology, Warsaw, PL

Poster Program

- P 87** **Performance Testing of Novel UF-TATB Formulations in the Floret Test**
- T. Barrowclough, P. Bolton, M. Wright
AWE Aldermaston, Reading, GB
- P 88** **Numerical Prediction of Safety Distances from Large Pool Fires of Organic Peroxides**
- K.B. Mishra, K.D. Wehrstedt
BAM, Berlin, D
A. Schönbacher
Universität Duisburg-Essen, D
- P 89** **Mechanisms of Ceramic Particle Formation from Detonation of Metal/Nitrates Compositions**
- J. Campos, R. Mendes
University of Coimbra, P
J. Calado, E. Antunes, A. Lagoa, S. Silva
METOXID – Oxidos Metalicos S.A., Aljustrel, P
- P 90** **Spatial Resolved Strain Measurements on Propellants by Image Processing**
- A. Blanc, L. Deimling
Fraunhofer ICT, Pfinztal, D
- P 91** **Burning Behaviour of Nitrate-based Ionic Liquids**
- U. Schaller, V. Weiser, E. Roth, T. Keicher
Fraunhofer ICT, Pfinztal, D
- P 92** **Combustion of Frozen H₂O₂-PE Sandwiches**
- S. Kelzenberg, V. Weiser
Fraunhofer ICT, Pfinztal, D
- P 93** **Investigation of Burning Metal Particle in a Hartmann-Tube**
- O. Schulz, V. Weiser, J. Neutz, E. Roth
Fraunhofer ICT, Pfinztal, D
- P 94** **Quality Evaluation of Foamed Propellants**
- J. Böhnlein-Mauß, H. Kröber
Fraunhofer ICT, Pfinztal, D

Poster Program

- P 95** **Theoretical Studies on Mechanism of Formation and Performance of Nitro-Substituted 1,3,5-Triazines**
- Kiyull Yang, Young Hee Park
Gyeongsang National University, Jinju, KOR
Soo Gyeong Cho
Agency for Defense Development, Yuseong Daejeon, KOR
Hai Whang Lee, Chan Kyung Kim
Inha University, Incheon, KOR
Hyun-Joo Koo
Kyung Hee University, Seoul, KOR
- P 96** **The Influence of Nitrocellulose Source on the Properties and Stability of a Nitroaromatic Plasticised Explosive Binder**
- R. Waddington, P. Deacon
AWE plc, Aldermaston, GB
- P 97** **Revolutionary Insensitive, Green and Healthier Training Technology with Reduced Adverse Contamination (RIGHTTRAC) Technology Demonstrator Program**
- P. Brousseau, S. Brochu, M. Brassard, G. Ampleman,
S. Thiboutot, F. Cote, L.-S. Lussier, E. Diaz, V. Tanguay, I. Poulin
Defence R&D Canada, Valcartier, CAN
- P 98** **X-Ray Diffraction and Microscopy Studies of the Structure of Molecular Compound FTDO-DNAP**
- V.E. Zarko, V.N. Simonenko
Institute of Chemical Kinetics and Combustion, Novosibirsk, RUS
A.A. Kvasov, A.I. Ancharov
Novosibirsk State University, Novosibirsk, RUS
K.E. Kuper
Institute of Nuclear Physics, Novosibirsk, RUS
- P 99** **Theoretical Study on the Structure and Stability of FOX-7**
- Zong He-Hou, Shu Yuan-Jie, Huang Yi-Gang
Institute of Chemical Materials CAEP, Mianyang, PRC
- P 100** **Formation of Nitrocompounds Structural Differentiation as a Basis for its Decomposition Mechanisms Simulation**
- T.S. Pivina, V.L. Korolev
Zelinsky Institute of Organic Chemistry, Moscow, RUS
T.V. Petukhova, V.P. Ivshin
Mari State University, Mari El Republic, RUS

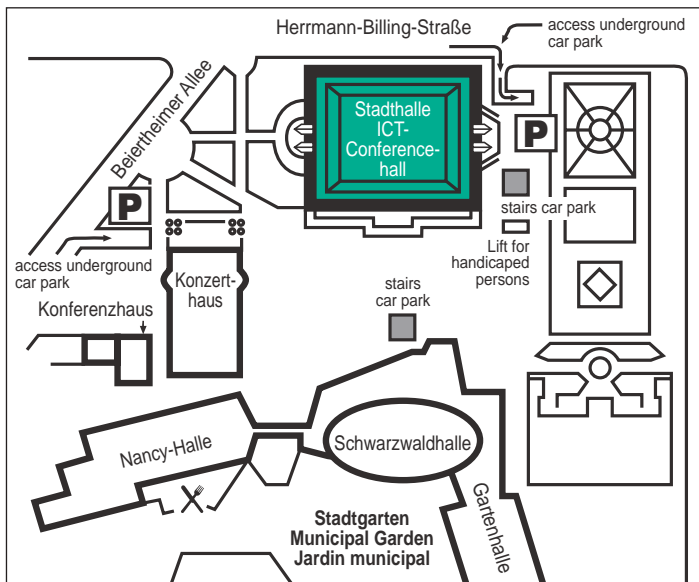
Poster Program

- P 101** **Effect of the Loading Rate on Deformation of Magnesium Thin Layers under Impact**
- V.A. Teselkin
Semenov Institute of Chemical Physics RAS, Moscow, RUS
- P 102** **Peculiarities of Mechanical Explosion Initiation for Some Solid Explosives**
- V.A. Teselkin
Semenov Institute of Chemical Physics RAS, Moscow, RUS
- P 103** **Thermal Decomposition of 2-Substituted 5,5-Dinitro-1,3-Dioxanes**
- R.S. Stepanov, L.A. Kruglyakova, A.M. Astachov
Siberian State Technological University, Krasnoyarsk, RUS
- P 104** **Synthesis and Structure of 4-Methyl-3-Nitro-1-Nitromethyl-1H-1,2,4-Triazolium Perchlorate**
- A.M. Astachov, A.A. Erashov, E.S. Buka
Siberian State Technological University, Krasnoyarsk, RUS
A.D. Vasiliev
Institute of Physics RAS, Krasnoyarsk, RUS
- P 105** **Effect of Ageing on the Heat of Explosion of HMX-Based Compositions Containing Nano-Sized Aluminium**
- M.N. Makhov
Semenov Institute of Chemical Physics RAS, Moscow, RUS
- P 106** **The Dissociation Energies of the Bonds in the Nitroderivates C5-C7 Alkanes**
- E.A. Miroshnichenko, T.S. Konkova, J.O. Inozemtcev
Semenov Institute of Chemical Physics RAS, Moscow, RUS
- P 107** **Thermochemical Properties of Guanidine Nitroderivatives**
- Y.N. Matyushin, V.P. Lebedev, E.A. Miroshnichenko,
T.S. Konkova, A.B. Vorobev, Y.O. Inozemtsev
Semenov Institute of Chemical Physics RAS, Moscow, RUS

Poster Program

- P 108 The Function of Nanometals in Enhancing the Explosion Performance of Composite Explosives**
- V.F. Komarov, G.V. Sakovich, A.B. Vorozhtsov, A.G. Vakutin, M.V. Komarova
Institute for Problems of Chemical and Energetic Technologies, Biysk, RUS
- P 109 The Interaction between CL-20 and Molten Explosives**
- V.F. Komarov, G.V. Sakovich, N.V. Boyarinova, P.I. Kalmykov, N.V. Bychin
Institute for Problems of Chemical and Energetic Technologies, Biysk, RUS
- P 110 Initiation of Solid Explosives by Impact and Friction**
- G.T. Afanasev, I.V. Buzilov, V.I. Dolgov, S.V. Kucherov, I.A. Niculin
Semenov Institute of Chemical Physics RAS, Moscow, RUS
- P 111 New Model for Analysis of the Spatial-Periodic Micro-Structures during the Burning of Energetic Materials**
- A.N. Lukin
University of Saint-Petersburg, Tuapse Krasnodar Territory, RUS
- P 112 Burning Mechanism of Highly Plasticized Nitrocellulose System with Ammonium Nitrate**
- A.P. Denisjuk, Ye Zaw Htwe
Mendeleyev University of Chemical Technology, Moscow, RUS
- P 113 Description of Hugoniot of Urea**
- I.M. Voskoboynikov
Semenov Institute of Chemical Physics RAS, Moscow, RUS
- P 114 Reducing Dibenylation of Hexaisowurzitane Derivatives**
- Sysolyatin
Institute for Problems of Chemical and Energetic Technologies, Biysk, RUS
- P 115 Crosslinking of Immiscible Blend GAP/HTPB**
- H. Fishman, B. Blumer-Ganon, A. Birnholtz, L. Gottlieb Rafael, Haifa, IL

Anfahrt Kongresszentrum Arrival Congress Center



Mit Straßenbahn / by tram:

aus Richtung / from the

Linie / route

- Hauptbahnhof / Main station: S 1, S 4, S 11, 2
- Stadtmitte / City center: S 1, S 4, S 11, 2
- »Durlacher Tor«: S 4, 2

Mit PKW / by car:

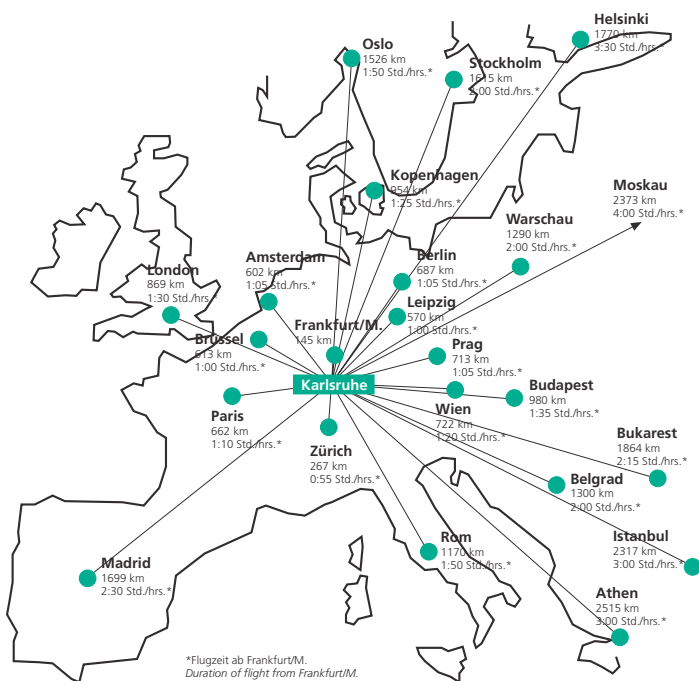
aus allen Richtungen, Beschilderung »Kongresszentrum« folgen /
from all directions, follow traffic signs to the »Kongresszentrum«

Organisation

Fraunhofer-Institut für
Chemische Technologie (ICT)
Attn. Manuela Wolff
P. O. Box 12 40
D-76318 Pfinztal (Berghausen)

Federal Republic of Germany

Phone: +49 - (0)7 21/46 40 - 1 21
or +49 - (0)7 21/46 40 - 0
Fax: +49 - (0)7 21/46 40 - 1 20
e-mail: manuela.wolff@ict.fraunhofer.de
<http://www.ict.fraunhofer.de>



Welcome in the heart of Europe



Fraunhofer Institut
Chemische Technologie

HORE
Hotel Reservation
Weingartener Str. 70

D - 76229 Karlsruhe

Platz für Visitenkarte

Zimmerreservierung / Accommodation

40th International Conference of ICT

June 23 - June 26, 2009, Karlsruhe

Ankunft / arrival Abreise / departure Ankunftszeit / arrival time

Anzahl der Zimmer / number of rooms EZ (Einzelzimmer) / SGL (single room) DZ (Doppelzimmer) / DBL (double room)

Bitte reservieren Sie Hotel / Please reserve Hotel EZ / SGL DZ / DBL Distance

A	*****	Dorint Kongresshotel	151,00 EUR	191,00 EUR	km 0,0
B	*****	Renaissance	136,00 EUR	154,00 EUR	km 0,5
C	*****	Schlosshotel	106,50 EUR	161,50 EUR	km 1,0
D1	****	Queens Komfort	143,00 EUR	169,00 EUR	km 0,5
D2	****	Queens Standard	128,00 EUR	154,00 EUR	km 0,5
E	**	Royal	90,00 EUR	120,00 EUR	km 0,5
F	*	Barbarossa	56,00 / 72,00 EUR	90,00 EUR	km 0,7

Alle Zimmer mit Bad/DuscheWC, inkl. Frühstück. / All rooms with bath/shower/WC, incl. breakfast.
Online Reservation: www.Hore-Hotel-Reservation.de/JT2009.html

Kreditkarte Kreditkartennummer zur Garantie Gültigkeit
 Creditcard Credit Card No. Valid until

Falls die gewünschte Hotelkategorie nicht mehr verfügbar ist, reservieren Sie bitte die Kategorie:
 If accomodation is not available in the desired category, please reserve category:

Name / name _____

Vorname / first name _____

Straße / street _____ Nr. / no. _____

PLZ / zip code _____ Ort / address _____

Land / country _____

Telefax / fax _____

Telefon / phone _____

E-Mail _____

Datum / date _____ Unterschrift / signature _____

Anmeldung / Registration Form

**40th International Conference of ICT
Energetic Materials** - Characterisation, Modelling and Validation

June 23 - June 26, 2009, Karlsruhe

Fax: +49 - (0)7 21 / 46 40 - 120

Last name

First name

Title/Position

I will pay the registration fee upon receipt of
the invoice

by remittance

by sending a cheque

Signature

Company / Authority / Postal Address

Participation (please tick)

Welcome Reception*
June 23, 2009, 18.00 h

Tour of the Institute*
June 26, 2009

* (incl. in the registration fee)

e-mail

Telefon Nr. / Phone No.

Fax Nr. / Fax No.

It is agreed upon that pictures being taken during this event
may be published.

**Fraunhofer-Institut für
Chemische Technologie • ICT
Attn. Manuela Wolff
P. O. Box 1240**

D - 76318 Pfinztal

