



Fraunhofer

ICT



air
bag 2018

PROGRAM

14th International Symposium
and accompanying Exhibition
on Sophisticated Car Safety
Systems

Mannheim, Germany
Congress Center "Rosengarten"

2018, November 26-28



14th International Symposium and Exhibition on Sophisticated Car Occupant Safety Systems

Program Committee

Jens Bosch

Volkswagen AG

Michael Fehring

Daimler AG

Helge Grasshoff

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Fraunhofer ICT

Chairman of the Symposium

Dr. Jochen Neutz

Fraunhofer ICT



14th International Symposium and Exhibition on Sophisticated Car Occupant Safety Systems

Welcome

The safety of all road users is a growing concern world-wide, while transportation faces a multitude of challenges but also opportunities such as new drive technologies or automated driving. Within this fast developing field, information is the key enabler of innovation and cutting-edge technology to maintain and improve road safety. The 14th AIRBAG 2000+ Symposium in 2018 will again be the meeting place for engineers, scientists, legislators, managers and marketing experts to exchange information, to make and improve contacts, to stimulate further progress and to promote integral safety for road users on an impartial platform.

The Fraunhofer Institute for Chemical Technology ICT is the leading independent research and development facility for airbag technology and testing. As a division of Fraunhofer, Europe's largest organization for applied and contract research, the Fraunhofer ICT offers a unique event for the automobile industry, suppliers and public authorities.

**Welcome to Mannheim, Germany,
and the world of Airbag 2018.**

Dr. Jochen Neutz
Chairman of the Symposium



GENERAL INFORMATION

Registration

Please return the enclosed **registration form** or
Online: www.ict.fraunhofer.de/airbag2018

You will then receive an **invoice**.

Registration fees (including proceedings, coffee breaks, lunch, evening receptions), depending on date of arrival of registration form at Fraunhofer ICT

*** up to November 12, 2018**

EURO 950,- (incl. 19 % VAT)

*** up to November 19, 2018**

EURO 1.050,- (incl. 19 % VAT)

Participation cannot be guaranteed for registrations arriving after November 19, 2018. A fee of EURO 500,- will be charged for cancellations after November 19, 2018. No-shows will be charged the complete fee.

Accommodation

www.ict.fraunhofer.de/airbag2018accommodation

Conference Office

is located in the **foyer of the Conference hall** and may be reached from **November 28 to November 30** by

Phone +49 (0)621-4106-5030

Check In / Welcome Reception

Please check in at the conference office on **Monday, November 26** between 13.00 and 20.00 h. All participants are cordially invited to the **Welcome Reception** in the foyer of the Conference hall on **Monday, November 26, 18.00 – 21.00 h.**

Conference Languages

English, German – **Simultaneous Interpretation**

Proceedings

One copy of the proceedings is **included** in the registration fee. Additional copies EURO 100,-.



EXHIBITORS
(registered up to publishing date)

Alt Technologies BV
Utrecht, NL

APTIV
Guyancourt, F

Autoliv Inc.
Stockholm, SE

Continental Automotive GmbH
Regensburg, D

Daicel Safety Systems Europe
Zarow, PL

Daimler AG
Sindelfingen, D

Dow Silicones Belgium SPRL
Seneffe, B

**Dürkopp Adler
Aktiengesellschaft**
Bielefeld, D

Electrovac Hermetic Packages
Salzweg, D

**Elkem Silicones
France SAS**
Lyon, F

GFU-Maschinenbau GmbH
Bitburg, D

**Gesellschaft für
Umweltsimulation e.V.**
Pfinztal, D

**Gütermann GmbH,
Tech Tex / Automotive Zwicky**
Gutach im Breisgau, D

**Hirtenberger Automotive Safety
GmbH & Co KG**
Hirtenberg, A

INVISTA Textiles (U.K.) Ltd.
Gloucester, UK

iSi Automotive Austria GmbH
Wien, A

**Jinzhou Jinheng Automotive
Safety Systems**
Jinzhou, PRC

**Joyson Safety Systems
Aschaffenburg GmbH**
Aschaffenburg, D

Mikron Automation
Boudry, CH

Nippon Kayaku
Tokyo, JAP

**PFAFF Industriesysteme und
Maschinen GmbH**
Kaiserslautern, D

**PFAFF Industriesysteme und
Maschinen GmbH, Zweig-
niederlassung KSL**
Lorsch, D

PPI Adhesive Products
Banská Bystrica, SK

Quadrant CMS N.V.
Tielt, B

Robert Bosch GmbH
Stuttgart, D

SCHOTT AG
Landshut, D

**Schreiner Group GmbH & Co. KG
ProTech**
Oberschleißheim, D

ZF Friedrichshafen AG
Friedrichshafen, D

Monday, November 26

Workshops (in GERMAN only)

13.30 – 18.00 **WS1** **Workshop "Retten ohne Risiko!" für Rettungskräfte mit "Airbag-Update", Einsatzberichten und Erfahrungsaustausch**
POC: Rolf.Erbe@berliner-feuerwehr.de
Teilnahmegebühr: EURO 119,- inkl. MWSt.
Frei für Teilnehmer des airbag-Symposiums.
Begrenzte Teilnehmerzahl, Anmeldung formlos
an manuela.wolff@ict.fraunhofer.de

13.30 – 17.30 **WS2** **Expertenmeeting »Berliner Erklärung zur Fahrzeugsicherheit« des VDI – Potenziale und Grenzen des Automatisierten Fahrens**
Programm und Anmeldung unter
www.vdi.de/ef-berliner-erklaerung

18.00 – 21.00 **Welcome Reception** for all participants
(Symposium, Workshop, Exhibition)

Tuesday, November 27

08.00 – 08.15

WELCOME AND OPENING

J. Neutz
Chairman of the Symposium
B. Hefer
Moderator of "airbag 2018"
Fraunhofer ICT, Pfinztal, D

08.15 – 09.00

V1

KEYNOTE
THE FUTURE CHALLENGES OF VEHICLE SAFETY

M. Rabe
SEAT S.A., Martorell, E

1st SESSION: GLOBAL CHALLENGES AND REQUIREMENTS

Session Responsible: Michael Fehring
Daimler AG, Sindelfingen, D

09.00 – 09.25

V2

IAAT – ACCIDENT RESEARCH PROGRAM IN BRAZIL

O. Schulze
Joyson Safety Systems Brazil, Jundiai, BR
T. Lich
Robert Bosch GmbH, Stuttgart, D

09.25 – 09.50

V3

HOW CAN VEHICLE SAFETY CONTRIBUTE TO INCREASE ROAD TRAFFIC SAFETY IN INDIA?

T. Lich, J. Mönnich, A. Georgi
Robert Bosch GmbH, Stuttgart, D
G. Kumaresh
Robert Bosch Engineering and Business Private Solution Ltd., Bangalore, IND

09.50 – 10.15

V4

EURO NCAP, IN PURSUIT OF VISION ZERO

R. Schramm, M. van Ratingen
Euro-NCAP, Brussels, B

10.15 – 10.40

V5

IIHS RESEARCH TOWARD THE DEVELOPMENT OF AN UPDATED SIDE IMPACT CRASH TEST PROGRAM

B. Mueller
Insurance Institute for Highway Safety, Ruckersville, USA

10.40 – 11.10

Coffee Break



PROGRAM

Tuesday, November 27, 2018

11.10 – 12.00

POSTER SESSION

Session Responsibilities: Heiko Ruck, Joyson Safety Systems, Aschaffenburg, D
Hans Spies, Ingenieurbüro Spies, Hohenwart, D
Jochen Neutz, Fraunhofer ICT, Pfinztal, D

12.00 – 13.30

Lunch Break

2nd SESSION: SYSTEM CHALLENGES AND ANSWERS

Session Responsible: Dirk Schultz
ZF Group, Alfdorf, D

13.30 – 13.55

V6

POTENTIAL OF FUTURE AIRBAG SYSTEMS – HOW TO IMPROVE AIRBAGS EVEN MORE?

G. Müller, J. Holtz
TU Berlin, Berlin, D
H. Johanssen, A. Büchner
Medizinische Hochschule Hannover, Hannover, D

13.55 – 14.20

V7

FRONTAL AIRBAG SYSTEM: AN INTEGRATED SAFETY APPROACH

G. Jeong, S. Hoon Ko, H. Kwon Park,
K. Sang Lee, H. Bae Lee
Hyundai Mobis, Yongin-si, ROK

14.20 – 14.45

V8

A FAR SIDE OCCUPANT PROTECTION SYSTEM

B. Pipkorn, K.-J. Larsson
Autoliv Development AB, Vargarda, SE

3th SESSION: METHODS AND TESTING

Session Responsible: Bodo Specht
AUDI AG, Ingolstadt, D

14.45 – 15.10

V9

NEW EVALUATION METHODS FOR INFLATOR PERFORMANCE

F. Wollny
Joyson Safety Systems, Berlin, D

15.10 – 15.35

V10

MASS FLOW DETERMINATION OF AIRBAG INFLATORS

P. Yurrita, J. Neutz, T. Klahn
Fraunhofer ICT, Pfinztal, D
N. Edelmann
AUDI AG, Ingolstadt, D



PROGRAM

Tuesday, November 27, 2018

15.35 – 16.00 **V11** **INCREASING THE PREDICTION QUALITY OF AIRBAG SIMULATION MODELS**
M. Lich
Volkswagen AG, Wolfsburg, D
M. Kröger
TU Bergakademie, Freiberg, D

16.00 – 16.30 **Coffee Break**

4th SESSION: INTEGRATED SAFETY

Session Responsible: Thomas Miodek
Porsche AG, Weissach, D

16.30 – 16.55 **V12** **INTEGRATED SAFETY FOR AUTOMATED DRIVING**
S. Linkenbach, K. Rink, B. Peters
Continental, Frankfurt, D

16.55 – 17.20 **V13** **INTEGRATED SAFETY – ENABLING FOR TECHNOLOGIES FOR FUTURE VEHICLES**
F. Laakmann, U. Class, M. Seyffert
ZF Friedrichshafen AG, Alfdorf, D

17.20 – 17.55 **V14** **FUTURE PASSIVE SAFETY NEEDS FOR PASSENGER CAR OCCUPANTS: PREDICTED INJURY PATTERNS AND POSSIBLE COUNTERMEASURES**
M. Östling, P. Puthan, H. Jeppsson, N. Lubbe
Autoliv Development AB, Vargarda, SE

17.55 – 18.15 **Awards**

18.15 – 21.30 **Evening Reception** (in the foyer of the Conference Hall) with entertainment by **"The Speedos"**

Wednesday, November 28

5th SESSION: PASSIVE SAFETY ASPECTS OF AUTOMATED DRIVINGSession Responsible: Joachim Lodemann
Autoliv, Elmshorn, D

- 8.00 – 8.25 **V15 AUTOMATED VEHICLES – WHO NEEDS BELTS AND AIRBAGS? PASSIVE SAFETY APPROACH DERIVED FROM EXPECTED ACCIDENT SITUATIONS**
M. Kühn, J. Bende
GDV, Berlin, D
- 8.25 – 8.50 **V16 DEVELOPMENT OF OCCUPANT RESTRAINT SYSTEMS FOR FUTURE SEATING POSITIONS IN FULLY OR SEMI AUTONOMOUS VEHICLES**
A. Huf, S. S. Velavan
BMW AG, München, D
- 8.50 – 9.15 **V17 STUDY OF THE OCCUPANT INJURY TENDENCY BY THE CHANGE OF OCCUPANT POSTURE IN AUTOMATED CAR**
H. Ida
Toyoda Gosei Co. Ltd., Aichi, JAP

6th SESSION: SENSORSSession Responsible: Clemens Willke
Robert Bosch GmbH, Stuttgart, D

- 9.15 – 9.40 **V18 OCCUPANT SAFETY MONITOR: IMPORTANT INPUT FOR INTEGRATED SAFETY**
A. Forster, D. Zittlau
Continental, Regensburg, D
- 9.40 – 10.05 **V19 INTERIOR SENSING AS ENABLER FOR OCCUPANT SAFETY AND COMFORT IN AUTONOMOUS VEHICLES**
P. Dreuw
Robert Bosch GmbH, Hildesheim, D
A. Leurs
Robert Bosch GmbH, Renningen, D



PROGRAM

Wednesday, November 28, 2018

10.05 – 10.30 **V20** **FUTURE STEERING WHEELS AND SEATBELTS:
OCCUPANT STATE SENSING AND TACTILE
FEEDBACK**

J. Karlsson
Autoliv Development AB, Vargarda, SE

10.30 – 11.00 **Coffee Break**

7th SESSION: PRE-CRASH

Session Responsible: Adam McNeill
BMW, München, D

11.00 – 11.25 **V21** **SENSOR PERFORMANCE IMPROVEMENT
AND DATA FUSION ENHANCES PRE-CRASH
MANAGEMENT**

H. Spies, M. Spies
Ingenieurbüro Spies, Hohenwart, D

11.25 – 11.50 **V22** **PROSIP: PROACTIVE SIDE IMPACT
PROTECTION SYSTEM – INSIGHT INTO
SCENARIO DRIVEN TOP DOWN
DEVELOPMENT**

G. Halsdorf, U. Class, E. Core, B. Ferraz,
E. Koch, M. Wandrey
ZF Friedrichshafen AG, Friedrichshafen, D

11.50 – 12.15 **V23** **PRE SENSE SIDE FOR ADVANCED OCCUPANT
PROTECTION IN SIDE COLLISIONS**

C. Weiss, S. Katzenbogen
AUDI AG, Ingolstadt, D
T. Störmer
Automotive Safety GmbH, Gaimersheim, D

12.15 – 13.30 **Lunch Break**



8th SESSION: INFLATOR TECHNOLOGY AND QUALIFICATION

Session Responsible: Jens Bosch
Volkswagen, Wolfsburg, D

- | | | |
|---------------|------------|---|
| 13.30 – 13.55 | V24 | DEVELOPMENT OF AN ASPIRATED INFLATOR FOR PREVENTING OUT-OF-POSITION OCCUPANT INJURIES
D. Breed
Automotive Technologies International,
Miami, USA
S. Zhang
Shanghai East Joylong Motor Airbag Ltd,
Shanghai, PRC
N. Yurchenko, G. Voropaiev
National Academy of Sciences, Kiev, UKR |
| 13.55 – 14.20 | V25 | DEVELOPMENT OF A NEW PROTOCOL FOR THE INFLATOR ROBUSTNESS CHARACTERIZATION REGARDING THE DUCTILE TO BRITTLE TRANSITION DOMAIN
H. Fresnel, C. Caisso
Autoliv Livbag, Pont-de-Buis, F
N. Jacques, Y. Demmouche, A. El Malki Alaoui
Institute de Recherche Dupuy de Lome IRDL,
Brest, F |
| 14.20 – 14.55 | V26 | ACCURATE DESCRIPTION OF THE AGEING OF ENERGETIC MATERIALS
M. Heil
Fraunhofer ICT, Pfinzthal, D |
| 14.55 – 15.20 | V27 | LESSONS LEARNED FROM INFLATOR FIELD ISSUES
B. Schubert
TK Global, Romeo, USA |
| 15.20 | | Closing Remarks |

Posters will be presented in the Foyer of the Conference Hall during the Symposium. A special **POSTER SESSION** will be held on Tuesday, November 27, 11.10-12.00 h. During this time authors should be present for discussion at their posters.

RESTRAINT SYSTEMS AND MODULES

- P28 TOWARD AUTONOMOUS VEHICLES: BASIC AERODYNAMIC BACKGROUND FOR NOVEL AIRBAG INFLATION SYSTEMS**
D. Breed
Automotive Technologies International Inc., USA
S. Zhang
Shanghai East Joylong Motor Airbag Ltd., PRC
N. Yurchenko, G. Voropaiev, N. Rozumnyuk, P. Vynogradskyy,
Y. Zagumenny, E. Sirosh, K. Kuzmenko, Y. Paramonov, A. Koshil,
V. Tsymbal
Institute of Hydromechanics, National Academy of Sciences, UKR
- P29 INFLATOR PERFORMANCE OPTIMIZATION WITH NEW PAB CONCEPT FOR OMDB, LRD**
Raeick Jang, Yoo Hoon Choi, Doo Won Yang, Ga Ram Jeong,
Seok Min Lee
Hyundai Mobis Co. Ltd., Yongin-Si, ROK
- P30 NOVEL SIDE AIRBAG**
B. Pipkorn
Autoliv Development AB, Vargarda, SE
- P31 DEVELOPMENT OF SIDE IMPACT AIRBAG SYSTEM FOR THORAX-PELVIS PROTECTION**
R. Jabbari, J. Sajjadi
Andisheh Industrial Group, Babolsar, IR
- P32 INVESTIGATION THE EFFECT OF NEW DESIGN OF TETHER FOR DRIVER AIRBAGS AND USE OF TWIN CHAMBER AIRBAG ON DRIVER SAFETY ENHANCEMENT**
M.J. Sajjadi, M. Ghanbarnia Sooteh, Z. Kelij
Andisheh Industrial Group, Babolsar, IR
- P33 DESIGN CONSIDERATION OF THE PASSENGER AIRBAG GEOMETRY**
M. Ebrahimi
Andisheh Industrial Group, Babolsar, IR

- P34 A DOCUMENTED WORK EXPERIENCE: DESIGN AND DEVELOPMENT OF AIRBAG SYSTEM COMPLIES WITH EURO NCAP REQUIREMENT FOR THE FIRST TIME IN THE MIDDLE EAST**
M.H. Rajani, R. Rojaei, S.M. Pourhosseini Jorsheri
Andisheh Industrial Group, Babolsar, IR
- P35 A STUDY OF THE REAR EXTERNAL AIRBAG TO ABSORBING THE REAR-END COLLISION ENERGY**
Jiwoon Song, Sang Won Hwangbo, Hae Kwon Park, Kyu Sang Lee, Man Suk Bae, Jae Jun Harm, Yong Sun Kim, Taewook Jung
Hyundai MOBIS, Yongin-si, ROK
- P36 „IF IT HAPPENS ON THE OTHER SIDE...“ – INVESTIGATION OF NEW EURO NCAP FAR-SIDE SIDE IMPACT REQUIREMENTS**
K. Hallbauer, U. Dierks, A. Riedel
Joyson Safety Systems, Ulm, D
I. Kalliske
Joyson Safety Systems, Berlin, D
- P37 A STUDY ON THE MECHANISM OF REDUCING THE RESIDUE OF AUTOMOBILE DRIVER AIRBAG**
Shu Jun-Ling
Hubei Institute of Aerospace Chemical Technology, Xiangyang, PRC
- P38 THE TRUTH BEHIND MYTHS IN VEHICLE SAFETY OR WHY EURO-NCAP HAS TO BE REVISED**
W. Langner
Mathematics in Vehicle Safety, Wolfsburg, D
- P39 KNEE AIRBAG DEVELOPMENT PROCESS AUTOMATION AND OPTIMISATION**
A. Mugnai
ESTECO, Trieste, I
A. Diederich
Toyoda Gosei, Saarbrücken, D

TESTING AND CHARACTERIZATION

- P40 ENHANCED ROLLOVER DISCRIMINATION METHOD WITH MULTI-AXIS SENSOR**
Taewon Park, Sughyun Jeong, Seonghun Lee
Hyundai Mobis Co. Ltd., Yongin-Si, ROK
- P41 DEVELOPMENT OF THE MUSCLE TONE DUMMIES**
H. Ida
Toyoda Gosei Co. Ltd., Aichi, JAP

- P42 CHARACTERIZATION OF AIRBAG FABRICS SUBJECTED TO MULTI-BIAXIAL LOADING RATIOS AND ELEVATED TEMPERATURES**
F. Kölbl, S. Rodinger, W. Harwick, M. Boljen
Fraunhofer EMI, Freiburg, D
- P43 TOWARDS TRANSIENT REPRESENTATIONS OF INFLATOR EXIT GAS TEMPERATURE INCORPORATED WITH CFD SIMULATIONS**
C.-Y. Chang, L. Kyriakidis, T. Laufer
Joyson Safety Systems, Aschaffenburg, D
- P44 NEW LEVELS OF AIRBAG PERFORMANCE AND COMPLIANCE TESTING**
B. Streich
HuDe GmbH, Erkelenz, D

SIMULATION

- P45 DEVELOPMENT OF A MASS-SPRING-DAMPER MATHEMATICAL MODEL FOR A VEHICLE CRASH ANALYSIS**
S.M. Pourhosseini Jorsheri
Andisheh Industrial Group, Babolsar, IR
- P46 NUMERICAL INVESTIGATION AND EMPIRICAL MODELING OF FILTER IMPACT IN INFLATOR APPLICATIONS**
C.-Y. Chang, M. Amthor, J. Braun
Joyson Safety Systems, Aschaffenburg, D
- P47 ONE DIMENSIONAL BALLISTIC MODELING OF MULTIPLE-LOADING INITIATORS FOR AIRBAG INFLATOR APPLICATIONS**
C.-Y. Chang, T. Moradiya
Joyson Safety Systems, Aschaffenburg, D
M. De Boni, D. Riese, K. Mader-Arndt
TAKATA Ignition Systems, Schönebeck, D

INTEGRATED SAFETY / AUTONOMOUS DRIVING

- P48 MAKING INTEGRATED OCCUPANT SAFETY SYSTEMS ASSESSABLE – VIRTUAL ASSESSMENT APPROACH FOR VARIABLE SEATING POSITIONS AND PRE-CRASH CONDITIONS**
P. Luttenberger, W. Sinz
Technische Universität Graz VSI, Graz, A
G.A. D'Addetta, H. Freienstein
Robert Bosch GmbH, Stuttgart, D
- P49 DATA RECORDING FOR AUTOMATED DRIVING**
K. Heyer, M.O. Nilsen
Robert Bosch GmbH, Heilbronn, D

- P50 Future Steering Wheel Concepts**
M. Schledorn
ZF Friedrichshafen AG, Aschaffenburg, D
-

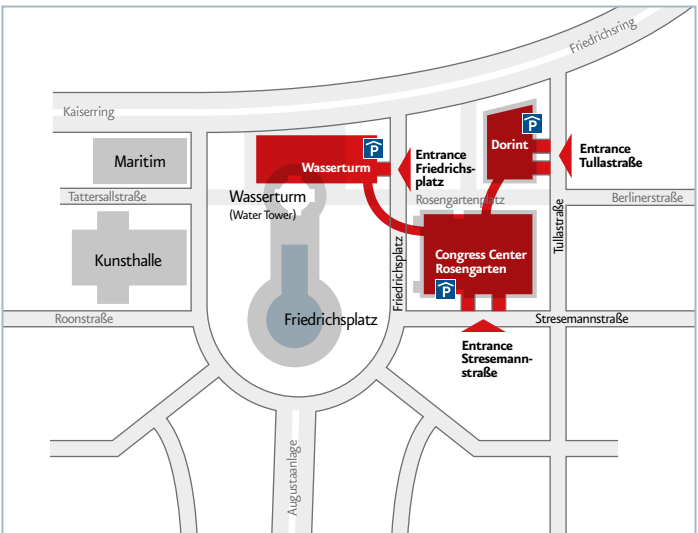
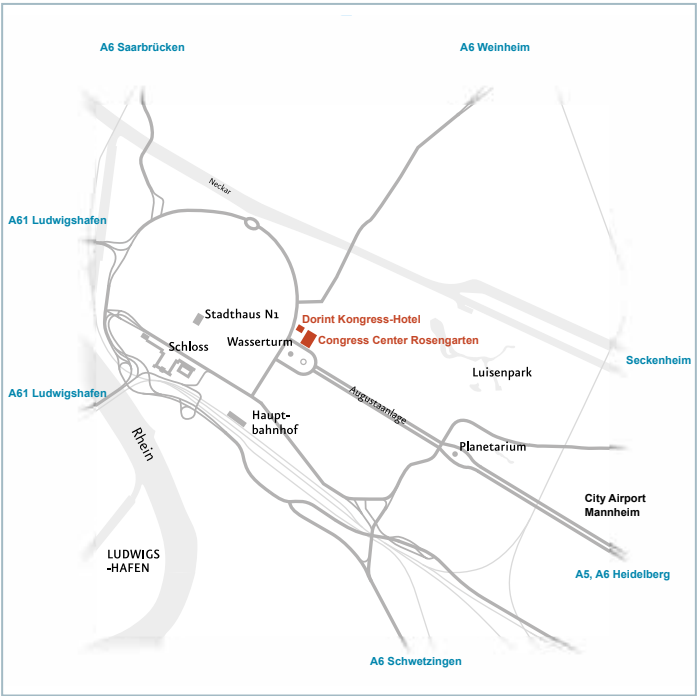
PYROTECHNIC

- P51 PROPELLANT IGNITION AND EARLY COMBUSTION AT LOW PRESSURE**
N. Daviot, I. Masquelier, R. Andry
Autoliv Livbag, Pont-de-Buis, F
S. Kerampran, J. Leclanche
Institut de Recherche Dupuy de Lome IRDL, Brest, F
- P52 STUDY ON THE SAFETY AND PERFORMANCE OF GAS GENERANT WITH WATER-SOLUBLE AP PROCESS**
Wang Xiaoqiang, Zhang Ning, Wang Xingkui, Yao Jun
Hubei Institute of Aerospace Chemotechnology, Xiangyang, PRC
Hou Jingjing
Hubei Hangpeng Chemical Power Technology Co. Ltd., Xiangyang, PRC
- P53 ENVIRONMENTAL AGING OF BASIC COPPER NITRATE**
S. Taylor, C. Huff, B. Hart, G. Ramminger
The Shepherd Chemical Company, Norwood OH, USA
- P54 THE DEGRADATION MECHANISM OF GUANIDINE NITRATE BASED GAS GENERANT**
Y. Nishiwaki, M. Kumasaki
Yokohama National University, JAP
-

COMPONENTS

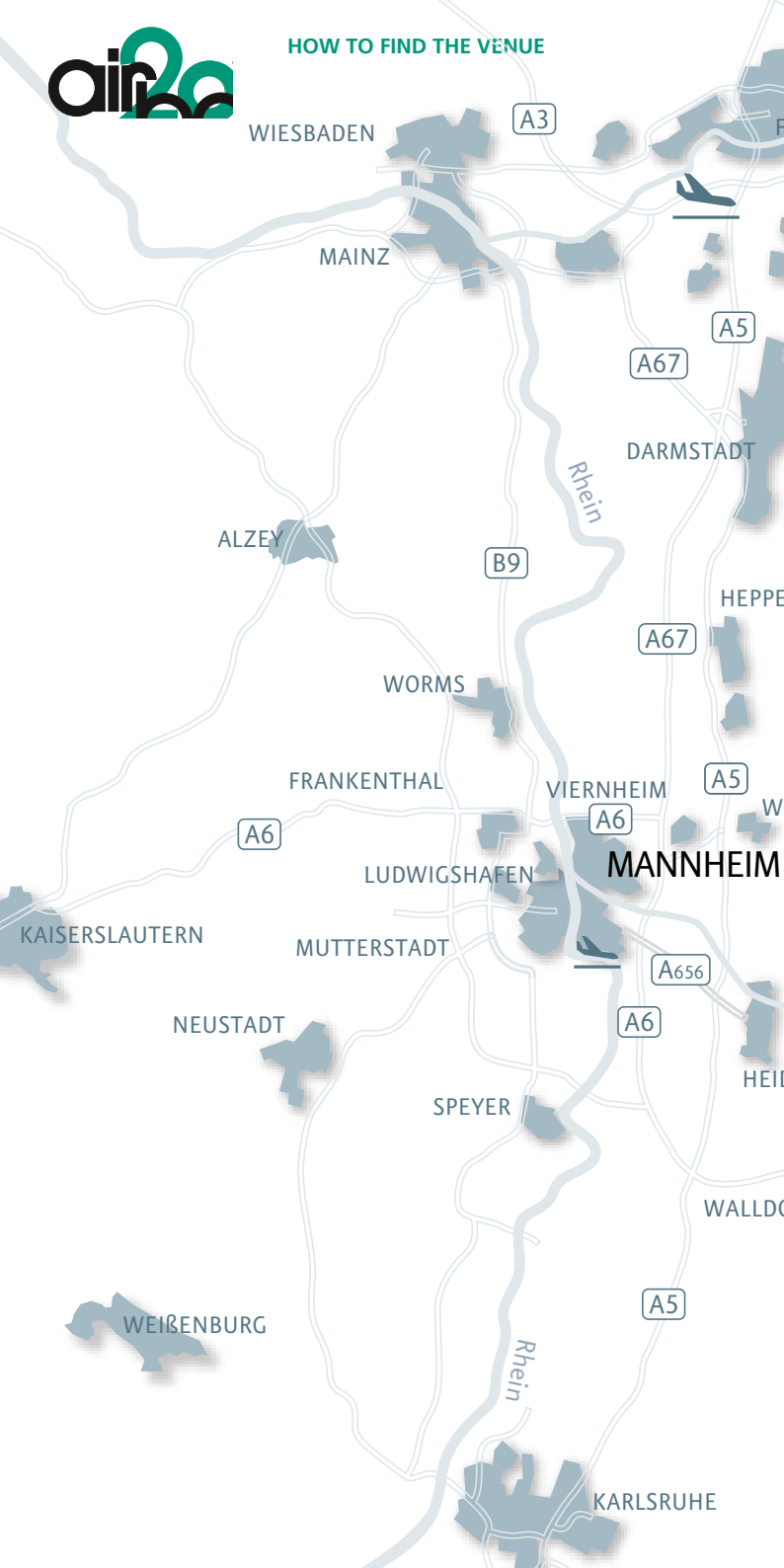
- P55 VARIANT-ADAPTIVE HOT GAS PROCESSING FOR AIRBAG SYSTEMS**
N. Komorek, N. Beckers
Filtertechnik Europe GmbH & Co. KG, Heinsberg, D
Li Ronggang
Baoding Filter Equipment Co. Ltd., Baoding, PRC
- P56 ADVANCES IN LOW COAT WEIGHT SILICONE COATINGS FOR AIRBAGS**
E. Pouget, M. Slaviero, M. Zhou
Elkem Silicones, Saint Fons, F
- P57 SEALING SEWING SEAMS OF CURTAIN AIRBAG**
M.J. Sajjadi, M. Sadafi
Andisheh Industrial Group, Babolsar, IR

HOW TO FIND THE VENUE





HOW TO FIND THE VENUE



WIESBADEN

A3

MAINZ



A5

A67

DARMSTADT

ALZEY

B9

Rhein

HEPPE

A67

WORMS

FRANKENTHAL

VIERNHEIM

A5

A6

LUDWIGSHAFEN

A6

MANNHEIM

KAISERSLAUTERN

MUTTERSTADT

A656

NEUSTADT

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HEID

SPEYER

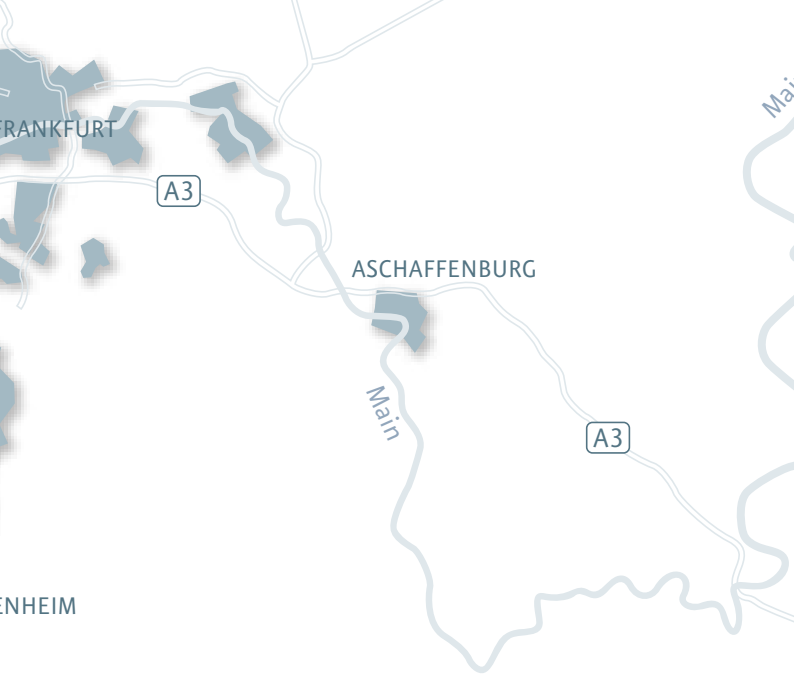
WALLD

WEIBENBURG

A5

Rhein

KARLSRUHE



Getting to the Congress Center Rosengarten Mannheim

Travelling by car

From the A6 or A5 at the Mannheim or Heidelberg motorway intersection, continue towards „Mannheim-Mitte“. You will reach the Rosengarten and the Dorint Congress Hotel via the Augustaanlage.

Travelling by train

Mannheim is an ICE/IC junction station. There is a direct ICE connection from Mannheim to Basel, Berlin, Cologne, Düsseldorf, Frankfurt am Main, Frankfurt am Main Airport, Freiburg, Hamburg, Munich, Paris, Stuttgart and many other cities. The Rosengarten is a five minute walk (walking towards the city centre) from the main railway station.



**Fraunhofer-Institut für
Chemische Technologie ICT
Attn. Manuela Wolff
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76138 Pfinztal
GERMANY**

**MUST BE PUT
INSIDE ENVELOPE**

Anmeldung / Registration form

14th International Symposium and Exhibition
on Sophisticated Car Occupant Safety Systems

November 26-28, 2018
Mannheim, Germany

Company / Authority / Complete Billing Address

Last name

First name

Title / Position

I will pay the registration fee upon
receipt of the invoice.

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

Signature

Participation (please tick)

Welcome Reception *

Monday, November 26, 6.00 p.m.

* included in the registration fee

VAT-No. (European countries only)

E-mail

Phone no.

Fax no.

airbag
2018

Fax +49 (0) 721 / 4640-120



14th International Symposium and Exhibition on Sophisticated Car Occupant Safety Systems

CONFERENCE MANAGEMENT

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EXHIBITION MANAGEMENT

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