



Airbag 2024 – Program

**16th International Symposium and
Accompanying Exhibition on
Integral Car Safety Systems**

Nov 25-27, 2024

Convention Center, Mannheim, Germany

**#airbagsymposium
#Airbag2024**



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16th International Symposium on Integral Car Safety Systems

The 16th AIRBAG symposium will be held at a demanding time for automotive manufacturers and suppliers, as they transition towards electrification, digitalization and the roll-out of autonomous driving functionalities. This transformation offers numerous challenges but at the same time significant opportunities for the development and implementation of innovative safety systems

The symposium will once again be the venue for international engineers, scientists, legislators, managers and marketing experts to exchange information, to make new contacts and to network to promote integral safety for road users on an impartial platform. The two-day program will cover relevant aspects from international accident studies and legislation framework, automotive trends and developments, innovations on system and component level, related tools, methods and further influencing factors for bringing systems efficiently to market as well as an outlook into future applications and new business opportunities.

For the first time the symposium will offer a platform for young talents to get in touch with the community and to set foot in this exciting area of technology.

**Welcome to Mannheim, Germany and to the
AIRBAG symposium 2024.**

Dr. Lars Fredrik Berg
Chairman of the symposium



Program Committee

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International Advisory Board

Jessica Jermakian
IIHS, USA

Pär Nilsson
Volvo Car Corp., SE

Prof. Qing Zhou
Tsinghua University, PRC

Exhibitors (registered up to publishing date)

- ACS Industries, USA
- ALT Technologies, NL
- ARC Automotive Inc., USA
- Astotec Automotive, AT
- Audi AG, DE
- Autoliv, Inc., SE
- Continental Automotive Technologies GmbH, DE
- Daicel Safety Systems Europe, PL
- DOW, BE
- electrovac AG, DE
- Elkem Silicones, FR
- Euscher GmbH & Co. KG, DE
- GFU-Maschinenbau GmbH, DE
- GUS Gesellschaft für Umweltsimulation e. V., DE
- Fraunhofer ICT / Fraunhofer EMI, DE
- IAT Ingenieurgesellschaft für Automobiltechnik mbH, DE
- Invista, USA
- JENOPTIK Automatisierungstechnik GmbH, DE
- Jinzhou Jinheng Automotive Safety System, PRC
- Joyson Safety Systems Aschaffenburg GmbH, DE
- Kayaku Safety Systems Europe, CZ
- Mercedes-Benz AG, DE
- Metal Flow Corporation, USA
- Newgentechs, ES
- Robert Bosch GmbH, DE
- Schott AG, DE
- SES, USA
- Sony Depthensing Solutions, BE
- Syre Impact AB, SE
- Toyoda Gosei Europe NV, DE
- Volkswagen AG, DE
- Yanfeng Automotive Safety Systems, DE
- ZF Lifetec, DE

General Information

Registration



- Register online:
www.airbag-symposium.eu/symposium
- You will receive an **invoice**
- Registration fee (incl. proceedings, coffee breaks, lunch, evening receptions): **€ 1.290,--**
- Participation cannot be guaranteed for registrations arriving after November 15, 2024. A fee of € 500,-- will be charged for cancellations after November 18, 2024. No-shows will be charged the complete fee.

Accommodation

- www.airbag-symposium.eu/hotels

Conference Office

- is located in the foyer of the Conference hall and may be reached from November 25 to November 27 by Phone +49 (0)621-4106-5030

Check in / Welcome Reception

- Please check in at the conference office on **Monday, November 25, 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 25, 18.00 – 21.00 h.**

Conference Language

- English, German – **simultaneous interpretation**

Monday, November 25

Workshop 1 (in GERMAN)

13.30-18.00 Workshop »Retten ohne Risiko!« für Rettungskräfte mit »Airbag-Update«, Einsatzberichten und Erfahrungsaustausch

POC: Rolf.Erbe@berliner-feuerwehr.de
Teilnahmegebühr: € 120,--

Frei für Teilnehmer des Airbag-Symposiums. Begrenzte Teilnehmerzahl, Anmeldung formlos an manuela.wolff@ict.fraunhofer.de mit Angabe der Rechnungsadresse.

Workshop 2 (in GERMAN)

14.00-18.00 Expertenmeeting »Berliner Erklärung zur Fahrzeugsicherheit« des VDI: Straßenverkehrssicherheit 2030 – Wie bringen sich die Experten der »Berliner Erklärung« zielgerichtet in den »Pakt für Verkehrssicherheit« des Bundes ein?

Programm und Anmeldung unter <https://www.vdi-wissensforum.de/01FO401>

Welcome Reception

18.00-21.00 Welcome Reception for all participants (Symposium, Workshops, Exhibition)

Tuesday, November 26

OPENING SESSION

- 08:00 **Welcome and opening**
L.F. Berg
Fraunhofer ICT, Pfinztal, DE
- 08:15 **L1 KEYNOTE**
Pioneering automotive safety: How system suppliers can enable OEMs to navigate automotive transformation
R. Stark
ZF Lifetec, Alfdorf, DE

Block 1 ROAD SAFETY – CURRENT STATUS AND REQUIREMENTS 2024 AND BEYOND

Session 1 INTERNATIONAL FIELD AND ACCIDENT STUDIES

Session Responsible: : T. Cohnen,
BMW AG, München, DE

- 08:40 **Introduction Block 1 and Session 1**
- 08:45 **L2 Airbag inflator climate assessment**
J. Rosenberg
Volvo Cars, Göteborg, SE
- 09:05 **L3 Risk of injury and injury pattern with and without an activated restraint system for front row car passengers in low-to-moderate severity frontal crashes**
H. Jeppsson, M. Östling
Autoliv, Vargarda, SE
R. Schindler
Autoliv, Dachau, DE

- 09:25 **L4** Road safety in a global perspective –
Accidentology in Asia and Europe
H. Liers
VUFO, TU Dresden, DE
- 09:45 Summary Session 1
- 09:50 Coffee break

**Session 2 DEVELOPMENT OF SAFETY RATINGS
AND LEGISLATION**

Session Responsible: G. Schneider,
Robert Bosch GmbH, Stuttgart, DE

- 10:20 Introduction Session 2
- 10:25 **L5** Comparing real world crash data with
EURO- and Bharat-NCAP-protocols
T. Lich, J. Mönnich
Robert Bosch GmbH, Renningen, DE
- 10:45 **L6** Euro NCAP – Rating news 2024 and
outlook 2026
M. van Ratingen
Euro NCAP, Brussels, B
- 11:05 **L7** Relevance of compatibility in US fatal
crashes
J. Jermakian
IIHS, Arlington, USA
- 11:25 Summary Block 1
Introduction Poster Session
- 11:35 **POSTER SESSION**
Session Responsible: L.F. Berg,
Fraunhofer ICT, Pfinztal, DE
- 12:30 Lunch break

Block 2 **TECHNOLOGICAL DEVELOPMENTS
INFLUENCING AND IMPROVING
VEHICLE SAFETY**

Session 3 **IMPACT OF NEW POWERTRAIN
CONCEPTS ON VEHICLE SAFETY**

Session Responsible: L.F. Berg,
Fraunhofer ICT, Pfinztal, DE

- 13:30 **Introduction Block 2 and Session 3**
- 13:35 **L8** **INCC: Simplifying regulatory complexity
in the vehicle safety industry**
S. Schneider
IAT Ingenieurgesellschaft für
Automobiltechnik mbH, Berlin, DE
A. Heft
BMW AG, München, DE
- 13:55 **L9** **Electric vehicles in crash tests –
“Small versus large”**
M. Brodbeck
Mercedes-Benz AG, Stuttgart, DE
- 14:15 **L10** **Volkswagen ID.7 – Key subjects of
vehicle safety**
S. Hagen, S. Stachulski
Volkswagen AG, Wolfsburg, DE
- 14:35 **L11** **Safety of “New Gen” batteries: Solid-state
batteries and sodium-ion-batteries**
F. Salk, P. Heugel, F. Klein, J. Tübke
Fraunhofer ICT, Pfinztal, DE
- 14:55 **Summary Session 3**
- 15:00 **Coffee break**

Session 4 IN-CABIN AND EXTERIOR SENSING

Session Responsible: P. Almeida,
Volkswagen AG, Wolfsburg, DE

- 15:30 Introduction Session 4
- 15:35 **L12** Simulation of the precrash phase for function-development and visualization
A. Forster, D. Westhofen, S. Zecha, B. Steeger
Continental Safety and Motion, Regensburg, DE
- 15:55 **L13** Interior sensing systems enhancing passive safety
E. Wacker, M. Schmid
Robert Bosch GmbH, Hildesheim, DE
- 16:15 **L14** Sensorfusion: enabling advanced restraint systems
V. Preu
Volkswagen AG, Wolfsburg, DE
- 16:35 Summary Session 4
Introduction Session 5

Session 5 ADAPTIVITY OF PASSIVE SAFETY SYSTEMS

Session Responsible: M. Fehring,
Mercedes-Benz AG, Stuttgart, DE

- 16:40 **L15** Adaptive restraint systems using advanced occupant classification
M. Kolbe, C. Fischer
ZF Lifetec, Alfdorf, DE
P. Russ
ZF Lifetec, München, DE

- 17:00 **L16** Equity efforts in vehicle safety drive adaptivity of restraint systems
K. Hallbauer
Joyson Safety Systems, Ulm, DE
- 17:20 Summary and closing day 1
- 17:30 Awards: Poster-Award & AIRBAG-Award
- 18:00-21:00 Exhibitors' Evening – Get-together in the foyer of the Conference Hall

Wednesday, November 27

Block 3 TOOLS AND METHODS ENABLING EFFICIENT DEVELOPMENT AND VALIDATION

Session 6 TOOLS AND METHODS – TEST METHODS AND DEVICES

Session Responsible: J. Neutz,
Joyson Safety Systems, Aschaffenburg, DE

- 08:00 Opening
Introduction Block 3 and Session 6
- 08:10 **L17** Blackbox side airbag-3D visualization of the scattering of a side airbag folding
T. Hofemeister
Volkswagen AG, Wolfsburg, DE
- 08:30 **L18** High-speed X-ray system provides deep insight into the dynamic of passenger safety and sets a new basis for the validation of restraint systems
M. Kurfiß, J. Fritsch, T. Soot
Fraunhofer EMI, Freiburg, DE

08:50 **L19** Verification methodology for active seatbelts in pre-braked crash scenarios using HYDRA®
M. Schlipf, B. Arbter, B. Brylka, L. Kübler
ZF Lifetec, Alfdorf, DE

09:10 Summary Session 6

09:15 Coffee break

Session 7 **TOOLS AND METHODS – TEST METHODS DUMMIES AND ATDS**
Session Responsible: B. Peters,
Continental Automotive Technologies GmbH,
Regensburg, DE

09:45 Introduction Session 7

09:50 **L20** Reproducibility and repeatability investigation of THOR 50 m chest response in vehicle environment – A unique data set for world wide collaboration
P. Wernicke
BMW AG, München, DE

10:10 **L21** Accounting for and dealing with uncertainty inherent to ATDs in the design of occupant safety systems
S. Kronwitter
Porsche AG, Weissach, DE

10:30 **L22** Gender discussion in vehicle safety – An overview of the consideration of subparts of the population in vehicle safety in current ATD development
H. Paul
Mercedes-Benz AG, Stuttgart, DE

10:50 Summary Session 7

10:55 Coffee break

Session 8 TOOLS AND METHODS – VIRTUAL ENGINEERING AND DIGITALIZATION

Session Responsible: A. Gulde,
Autoliv, Dachau, DE

11:25 Introduction Session 8

11:30 **L23** Human body modelling for tissue based injury prediction
B. Pipkorn
Autoliv, Vargarda, SE

11:50 **L24** The road to virtual testing, opportunities and challenges
M. Shkoukani
Joyson Safety Systems, Auburn Hills, USA
I. Kalliske, A. Heym
Joyson Safety Systems, Berlin, DE
K. Hallbauer
Joyson Safety Systems, Ulm, DE

12:10 **L25** Airbag CAE models – A new folding approach
M. Knoll, J. Büttner
ZF Lifetec, Alfdorf, DE
D. Fokin, O. Guerineau
Altair Engineering GmbH, Böblingen, DE

12:30 Summary Session 8

12:35 Lunch break

13:35

PANEL DISCUSSION

How to use tools and methods to achieve timely developments to market

Moderator: K.-F. Ziegahn, KIT Karlsruhe
Participants: tba

14:30

Coffee break

Block 4

ADVANCED TECHNOLOGIES FOR THE VEHICLE OF THE FUTURE

Session 9

AIRBAG INNOVATIONS FOR ENHANCED OCCUPANT SAFETY

Session Responsible: D. Schultz,
ZF Lifetec, Alfdorf, DE

15:15

Introduction Block 4 and Session 9

15:20

L26

Technology to suppress airbag bouncing

Y. Miyajima, T. Hiruta

Mazda Motor Corporation, Hiroshima, JAP

15:40

L27

Seatback airbag for rear-facing occupants in high-speed frontal impact

Donggil Lee, Jiwoon Song, Yonghyun Jung,

Jaejun Harm, Seokhoon Ko

Hyundai MOBIS, Gyeonggi-do, ROK

Yun-Seok Kang

The Ohio State University, USA

Hyungjoo Kim

Hyundai Motors, ROK

16:00 **L28** **Bernoulli PAB – Aspirated passenger airbag system**
J. Unger, M. Schock
Autoliv B.V. & Co. KG, Dachau, DE
C. Gailhard, L. Hellot
Autoliv France SNC, Gournay en Bray, F

16:20 **Summary Session 9**

Session 10 SAFETY TECHNOLOGIES FOR THE INTERIOR OF THE FUTURE

Session Responsible: D. Schultz,
ZF Lifetec, Alfdorf, D

16:25 **L29** **Interior of the future (IOF) and new seating positions require new airbag technology to improve lower leg protection of occupants**
W. Freisler
ZF Lifetec, Alfdorf, DE

16:45 **L30** **Innovative countermeasures to reclined occupant protection**
Liu Chongqing
Yanfeng International Technical Center,
Shanghai, PRC

17:05 **Summary Session 10**
Closing remarks Airbag 2024
L.F. Berg
Fraunhofer ICT, Pfinztal, D
Chairman

Poster Program

Posters will be presented in the **Foyer of the Conference Hall** during the Symposium. A special **POSTER SESSION** will be held on **Tuesday, November 26, 11.35 to 12.30 h.** During this time authors should be present for discussion at their posters.

- P31 Adaptive operating multi-chamber seat cushion airbag for frontal/lateral collisions**
Do Hyung Kim, Seokhoon Ko, Tae Hyeong Kim, Byeong Mann Ko
Hyundai MOBIS, Gyeonggi-do, ROK
- P32 Emergency braking-induced occupant repositioning implications for restraint system performance**
N. Shirur
Applus IDIADA, Ingolstadt, DE
S. Roka, A. Gravina, P. Lozano, C. Vanheule
Applus IDIADA, Santa Oliva, E
- P33 Predictive factors of the fatality of motor vehicle passengers involved in far-side lateral collisions**
H. Ida, Y. Kusuhara, M. Aoki, M. Asaoka
Toyota Gosei Co. Ltd., Kiyosu Aichi, JAP
A. Masumitsu, K. Koike
Kyoto Medical Center, Kyoto, JAP
M. Hitosugi, M. Nakamura
Shiga University of Medical Science, Seta Shiga, JAP
M. Baba
Keio University School of Medicine, Tokyo, JAP
- P34 Sustainable airbags: Ways to reduce the product carbon footprint (PCF)**
G. Weller
Joyson Safety Systems, Berlin, DE

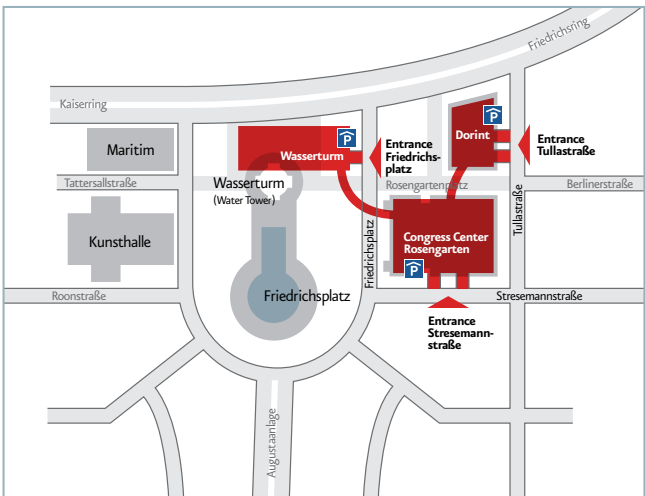
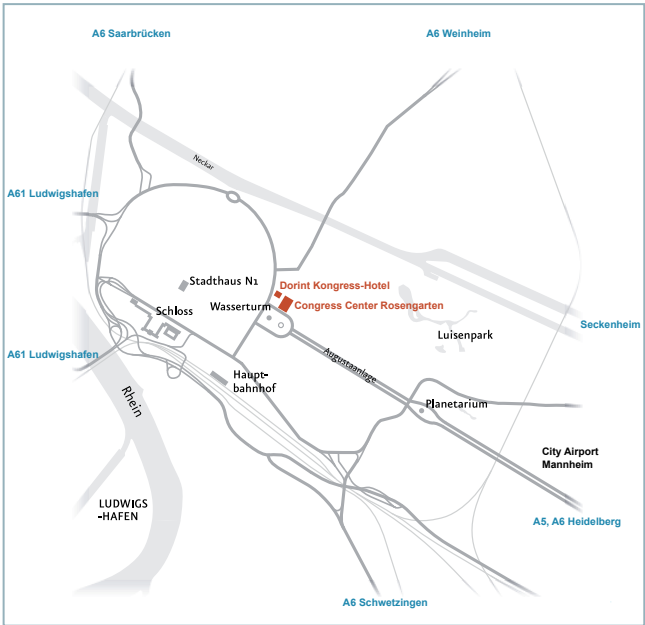
- P35 Mono-material sandwich seat-back structure**
A. Krüger, S. Kilian
Fraunhofer ICT, Pfinztal, DE
- P36 Confirming the remaining airbag safe service life by field monitoring**
T. Reith, S. Loibl
GWP Gesellschaft für Werkstoffprüfung mbH,
München, DE
- P37 Data-driven simulation of pre-crash and near-accident scenarios: the aveas project**
J. Ziehn, M. Fehling-Kaschek, B. Lickert, F. Luettner,
R. Moss, M. Pohle, D. Schreiber, D. Stadler
Fraunhofer EMI / IOSB / IVI, DE
S. Forkert
PTV Planung Transport Verkehr GmbH, DE
A. Forster
Continental Automotive Technologies, DE
H. Gommel
GOTECH GmbH, DE
S. Hammer
Spiegel Institut Ingolstadt GmbH, DE
D. Herrmann, N. Neis
Porsche Engineering Group GmbH, DE
M. Klemp, M. Strobelt
Karlsruhe Institute of Technology KIT, DE
C. Sowa
dSPACE GmbH, DE
J. Stompe
UnderstandAI GmbH, DE
D. Unger
Allianz Zentrum für Technik, DE
L. Eisemann
Stuttgart Media University HdM, DE
- P38 Methodology for structural robustness evaluation of hybrid airbag inflator submitted to pyrotechnic pressure wave**
N. Daviot, A. Berthe
Autoliv Livbag, Pont-de-Buis, F

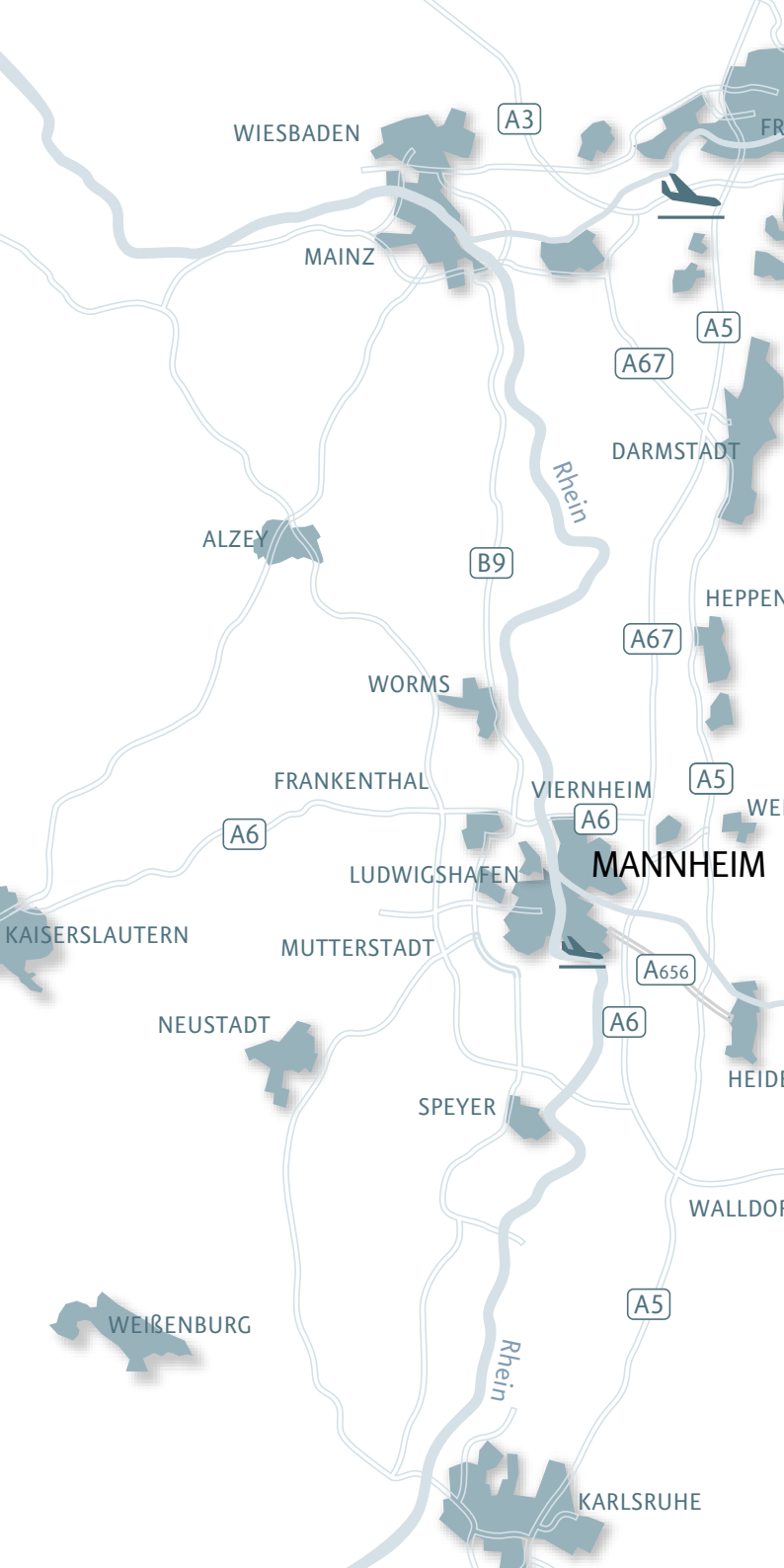
- P39 High speed volumetric capture (HSVC)**
A. Mangold
Photron Deutschland GmbH, Reutlingen, DE
- P40 Advancements in yarns, fabrics and sewing technologies for tomorrow's airbags**
K. Kuwahara, T. Kabeya, Y. Sato
Asahi Kasei Corp., Shiga, JAP
- P41 Sustainable silicone solutions for airbags**
M. Puillet, M. Slaviero
Elkem Silicones, Saint Fons, F
- P42 Cutting-edge silicones solutions: Saving lives and sustaining earth**
M. Rosenzweig, A. Kotnis, D. Ahn, T. Starke,
B. Czech, N. Hampu, T. Tasaki, R. Wang,
T. Nozoe, X. Tai
Dow Silicones Deutschland GmbH, Wiesbaden, DE
- P43 Zirconium metal for ignition pyrotechnics**
D. Pertig
Albemarle Germany GmbH, Langelsheim, DE
- P44 Developing a new generation of curtain-airbag inflators**
W. Tengler
ZF Lifetec, Aschau, DE
K. Luiten
ZF Lifetec, Mesa AZ, USA
- P45 Safety with comfort – the seatbelt in the changing face of fully autonomous mobility**
L. Hellweg, M. Beer
University of Applied Sciences, Mönchengladbach, DE
Y. Kyosev
Technische Universität Dresden, DE

- P46** **Setting up an experiment to study aspirated inflators**
N. Yurchenko
Institute of Hydromechanics, National Academy of Sciences, Kyiv, UKR
- P47** **Reduction of brain injury in driver by new structure driver airbag for oblique collision**
N. Yuki
Toyota Gosei Co. Ltd., Aichi, JAP
- P48** **Fire protection design concepts in a composite battery module housing**
L. John, L.F. Berg
Fraunhofer ICT, Pfinztal, DE
H. De Keyser, A. Dekeyser
Sumitomo Bakelite Europe, Gent, B
J. Tübke, M. Doppelbauer
Fraunhofer ICT, Pfinztal, DE / Karlsruhe Institute of Technology KIT, Karlsruhe, DE
- P49** **Slim sab with slim pyro inflator and thermal compression**
Jiwoon Song, Rae Ick Jang, Seung Ju Lee, Hyung Ho Je, Kyu Sang Lee
Hyundai MOBIS, Gyeonggi-do, ROK
- P50** **A practical approach to adaptive restraints using occupant monitoring**
S. Lehnert, J. Lisseman
Joyson Safety Systems, Aschaffenburg, DE
- P51** **Precrash control strategy for safety in new interiors**
M. Östling
Autoliv, Stockholm, SE
K. Heyer
Robert Bosch GmbH, Stuttgart, DE

- P52** **Top deployed driver airbag as an enabling technology for future steering wheel designs**
M. Schledorn, J. Morhart
ZF Lifetec, Aschaffenburg, DE

How to find the venue





WIESBADEN

A3

MAINZ



A5

A67

DARMSTADT

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Rhein

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MANNHEIM

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A6

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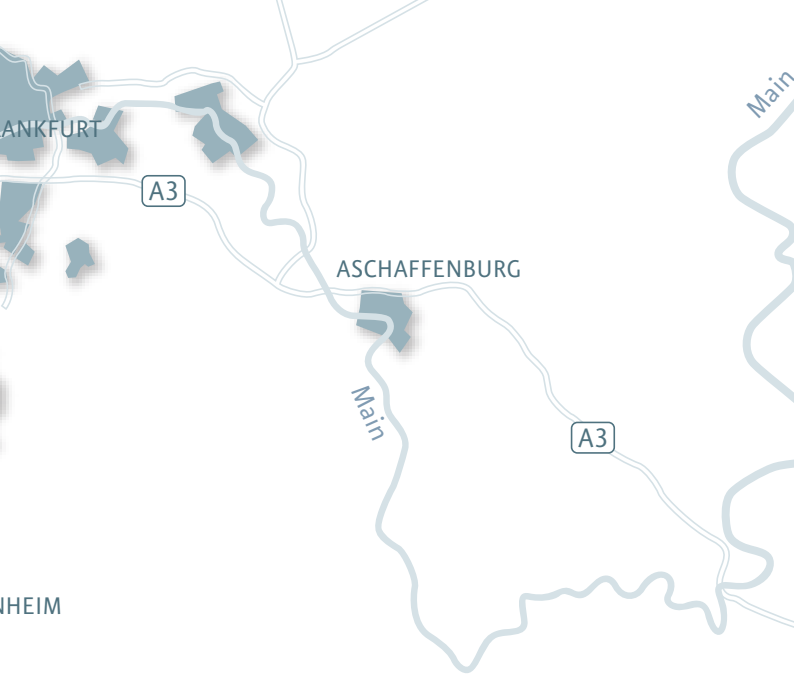
WALLDORF

WEIßENBURG

A5

Rhein

KARLSRUHE



HEIM

INHEIM

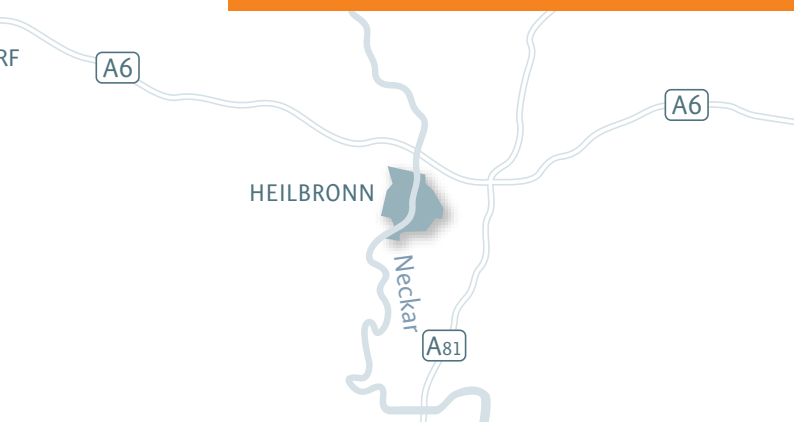
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**Getting to the Congress Center
Rosengarten Mannheim**

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: <https://int.bahn.de/en>



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