



14th AUTOMOTIVE

BRAKING SYSTEMS 2022

ELECTRIFICATION | AD/AV | BRAKE-BY-WIRE | FUTURE ARCHITECTURE



14TH AUTOMOTIVE

STEERING SYSTEMS 2022

ADAS & AV | STEER-BY-WIRE | STEERING DESIGN | CYBER SECURITY

30TH, 31ST AUGUST & 1ST SEPTEMBER

CROWNE PLAZA FRANKFURT CONGRESS HOTEL | FRANKFURT, GERMANY



POST SHOW REPORT

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The BRAKE Report™

THIS PAST SUMMER...

- ▶ Automotive IQ's 14th Braking Systems & 14th Steering Systems conferences connected 120 peers and colleagues working in the braking & steering industries at the Crowne Plaza Congress Hotel in Frankfurt. For many of our attendees, it was the first opportunity for face-to-face networking with industry peers since the beginning of the pandemic.
- ▶ From both the Braking and Steering presentations, panels and roundtable discussions, the key theme of next-generation technologies was discussed in fine detail, including the developments in steer-by-wire & brake-by-wire systems.
- ▶ The braking industry is experiencing a revolutionary phase in the development of new technology and changing requirements & evolving architectures are creating new challenges for braking experts. Similarly, the steering industry is exploring the reliability & availability of steer-by-wire systems, and exploring the key challenges in reducing cost, weight, volume & power consumption.
- ▶ Attendees at the conferences shared their expertise on the current state-of-the-art braking & steering systems as well as discussing and exchanging ideas and solutions to some of the greatest challenges facing steering and braking professionals today.



CONFERENCE HIGHLIGHTS

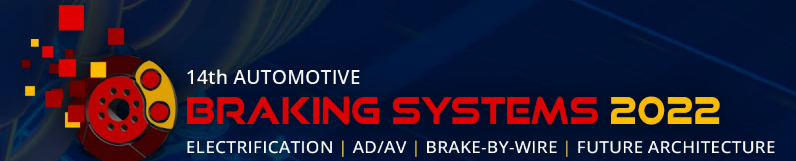


Please enjoy some of the highlights of the 14th Braking Systems & 14th Steering Systems conferences. We hope to see you at the next edition!

Alice Andrews, Project Director, **Automotive IQ**



14TH AUTOMOTIVE BRAKING SYSTEMS HIGHLIGHTS



Brake-by-Wire Focus Day

Highlighting current challenges in brake-by-wire adoption, construction, manufacturing, and safety



Keynote Presentations

Exploring the market outlook and OEM strategy for next generation braking technology



Proof of Concept Presentations

Deep dive discussions the application of AI/ML & smart components



Interactive Discussions

Expert-led discussion on future braking systems for EVs & AVs



Curated Networking Opportunities

Networking opportunities with OEMs, Tier 1s & Suppliers - offering a 5* on-site experience



14TH AUTOMOTIVE STEERING SYSTEMS HIGHLIGHTS



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Real World Case Studies

Experts shared case studies on the end-to-end strategy for improving steering system efficiency, including reducing vehicle weight, and increasing system effectiveness



Technology Demonstrations

We showed a breakdown of the latest technologies & tools being implemented into the steering system to maximise functionality



Roundtable Discussions

Audience-led discussions on reducing unit cost, weight & trimming system inefficiencies



Thought-led Presentations

Presentations on adapting steering design to accommodate L2 autonomous vehicles and beyond



Networking Drinks Reception

Dedicated networking time with the people that matter- including senior representatives from both the steering & braking communities



THE STATS

40
hours

dedicated to technical presentations & in-depth discussion

10
hours

of curated networking time

40
expert
speakers

from across the steering supply chain

132
attendees

from leading OEMs, Tier 1s & Suppliers



POST SHOW NETWORKING AND DRINKS



"It was a very interesting to see the common issues and potential directions in new technology development as well as market trend. This event has provided great networking possibilities."

Deputy Head Steering & Actuator Technology Center, NSK Deutschland GmbH



"I am impressed about the technical details given and the domination inside of the event. Covering the correct answers to the questions. It was very valuable to be up to date of future technologies. It has broaden my horizons up to a new level."

Senior Brake Systems Specialist, Tofas



"The event provided an interesting overview of market trends, including the views of industry players, and I gained a better understanding about time-to-market of new brake systems."

Head of Business Development, Swoboda Technologies



"The event was top notch in all aspects. Excellent presentations and organization. Very good discussions both with regards to depth, hence expert level, but also high-level networking. The future of Automotive Braking Systems was the focus and I think this conference makes the path clearer. Thank you all for a great event!"

Technical Specialist Brake Systems, Ford Motor Company



"Hearing OEM perspectives on future brake systems and vehicle architectures was very interesting and helpful"

Systems Engineer, Hyundai Mobis



"The speakers have a really good expertise into topic discussed, and this event gave me a trend regarding SbW system / market."

Head of HW Department, Hella Engineering France



"I would like to thank you for giving me opportunity to contribute in Automotive IQs Braking & Steering Events. Event was very well organized and managed. It was a learning curve for all of us."

Team Lead, Tata Technologies, Tata Motors



KEY TAKEAWAYS

KEYNOTE PRESENTATIONS



We heard from **Patricio Barbale, Senior Research Analyst- Mobility, at S&P Global**, on the current trends and market outlook for both the steering & braking industries. Patricio shared his insights into the state-of-the-nation for future steering & braking systems, including developments in brake-by-wire & steer-by-wire technology, touching on potential issues surrounding market forecasts, and the impact of electrification and higher levels of autonomy on the supply chain.

At the braking conference, **Pierre Garnier, Senior Manager-Brakes Engineering, Jaguar Land Rover**, and his colleague **Mark Foster, Technical Leader-Motion Systems**, shared their vision on future brake system strategies. Their presentation discussed current, near-term, and long-term solutions to the evolution of system requirements, and the electrification of brakes, and shared their ideas on the future challenges in braking systems, including motion control architecture.

At the steering conference, we heard from **thyssenkrupp Steering's Manager & Technical Lead in Steer-by-Wire Development, Imre Szepessy**, who discussed what is needed for the SbW breakthrough. Imre discussed the requirements of cost, functional safety, reliability, redundancy and performance, and shared his ideas on possible steer by torque vectoring configurations.

KEY TAKEAWAYS

TECHNICAL PRESENTATIONS



The braking conference saw experts give their takes on the future braking systems for autonomous vehicles. **Chidambaram Subramanian, Senior Braking System Engineer at Volvo Trucks North America,** and **Alessandro Travagliati, Principal Engineer- Braking Systems, Volvo Cars,** shared their visions for L3+ system requirements, including the application of artificial intelligence, and the need for cooperation between powertrain, braking, steering & suspension.


We also heard from Continental's **Martin Baechle & Dr. Thorsten Ullrich** on the brake-by-wire roadmap, and the integration of smart components into the brake systems.

Their presentations gave insight into the challenges & benefits of brake-by-wire technology, sparking lots of discussion with our audience across all 3 days of the conference.

At the both conferences, we heard from **Dr. Xavier Mouton, System Architect & Expert on Chassis Control at Renault** on vehicle motion control, and its impact on steering & braking systems. Dr. Xavier shared a system diagram for vehicle motion control and discussed the benefits of adapting this system for future vehicles.

KEY TAKEAWAYS

INTERACTIVE DISCUSSIONS



During both conferences, there was dedicated time for panel discussions with our expert speakers, as well as audience-led roundtables and extended question & answer sessions.



At the steering conference, our chairperson **Imre Szepessy**, and his colleague **Richard Hirschmann**, Senior VP R&D at **thyssenkrupp** lead a roundtable on reducing the volume, packaging, power consumption & cost of the steering system, encouraging our audience to share their own ideas and solutions for improving steering efficiency.

At the braking conference, our chairperson **Alessandro Travagliati** led a panel discussion with **Hrishikesh Kishor Kulkarni**, Team Lead, KBE & DPDS, **TATA Motors**, **Chidambaram Subramanian**, Senior Braking System Engineer, **Volvo Trucks**, **Dr. Nils Perzborn**, Manager System NVH EU, **ZF Group**, and **Thomas Svensson**, Technical Specialist Brake Systems, **Ford Motor Company** on the role of software in autonomous vehicles. The panel explored the benefits of higher levels of software control in braking systems and discussed with the audience the different solutions for ensuring software is robust, reliable & redundant.

THANKS TO OUR SPEAKERS



Thomas Svensson
Technical Specialist
Brake Systems
Ford Motor Company



Chidambaram Subramanian
Senior Braking System Engineer
Volvo Trucks North America



Pierre Garnier
Brakes System Architect
Jaguar Land Rover



Alessandro Travagliati
Brake Modulation HW/ Braking
System Architect
Volvo Cars



Mahesh Shinde
GM, HEAD - ERC
(Indoor testing)
Tata Motors Limited



Manohar Chenekala,
Product Engineering
Team Leader,
ZF Group



Mikael Ågren
Principal System Architect
for Vehicle Motion Control
Volvo Cars



Antony Auguste
Vice President Engineering
Hitachi Automotive Systems



Martin Baechle
Director Electronic Brake
System Development
Continental Automotive
Technologies GmbH



Dr. Thorsten Ullrich
Head of System Engineering
Future Brake System
Continental Automotive
Technologies GmbH



Sebastian Amrioui
Head of Brakes Engineering
Continental



Dr. Barna Szimandl
Project Leader Brakes
Thyssenkrupp Presta AG



Dr. Nils Perzborn
Manager System NVH EU
ZF Group



P C Mohankumar
Functional Safety Expert
ZF Group



Dr. Xavier Mouton
System Architect
& Expert on Chassis
Control & MultiSense
Renault



Dr. Merten Stender
Head of Machine Learning
Dynamics Group
Technische Universität
Hamburg



Arghavan Nazemi
Senior Control
Systems Engineer
Arrival



Mahesh Shinde
GM, ERC (Indoor Testing)
TATA Motors

THANKS TO OUR SPEAKERS & SPONSORS



Hrishikesh Kishor Kulkarni
Team Lead, KBE & DPDS
TATA Motors



Kathrin Kind-Trueller
Senior Research Scientist
in AI for Vehicle Control
Volkswagen



Christian Straub
Head of Steering,
Lotus



Franco Cimatti
Senior Chief Engineer
Advanced Concepts
Lotus Tech Innovation



Patricio Barbale
Senior Research Analyst
S&P Global



Keyur Patel
Engineering Software
Supervisor Steer-by-Wire
Nexteer Automotive



Imre Szepessy
Manager and Technical Lead,
Steer-by-Wire Development
thyssenkrupp Presta AG



Richard Hirschmann
Senior Vice President R&D
thyssenkrupp Presta AG



Reinhard Großheim
Safety Expert
Robert Bosch Automotive
Steering



Mateusz Czechowski,
NVH Engineering Supervisor,
Nexteer Automotive



Damian Pietrusiak,
Associate Professor,
Wroclaw University of
Science and Technology



Matthias Melchior,
Objective Vehicle
Dynamics Engineer,
Hyundai Motor Group



Enda Nicholl,
Marketing Manager
for Magnetic Sensor,
Analog Devices

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AHEAD OF WHAT'S POSSIBLE™

JOIN US IN 2023!

Our next
Steering and Braking USA conference
takes place in June 2023

Our next
Steering and Braking EU conference
takes place in August 2023

Plenary Speaking

-

Networking Space

-

Boardroom Sponsorship

-

Online Events

Panel Discussion

-

1-to-1 Meetings

-

Networking Drinks

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