



AUTOMOTIVE CIRCLE
CONFERENCE

CAR BODY ENGINEERING

INSIGHT @ BMW MANUFACTURING CO., LLC 2019

SEPTEMBER 12 – 13, 2019
GREENVILLE/SPARTANBURG, SC, USA

PLUS!

Guided tour through the
BMW X series production
in Spartanburg

**AGILE MANUFACTURING IN HIGH
VOLUME PRODUCTION**

in co-operation with

**BMW
GROUP**

Plant Spartanburg



INTEGRATING FUTURE PRODUCTS AND TECHNOLOGIES INTO THE PRODUCTION SYSTEM

At its Spartanburg plant in South Carolina, BMW Manufacturing currently employs more than 11,000 people to produce the X3, X5 and X7 Sports Activity Vehicle and the X4 and X6 Sports Activity Coupe. The 1,150-acre, 7-million-square-foot campus is the largest individual BMW car plant in the world, and for the fifth consecutive year it was the largest vehicle exporter in the USA in terms of value.

Freedom of choice is at the very heart of the BMW production process. BMW produces at least 80 percent of its vehicles to customer order. As part of the global BMW production network, Spartanburg applies the same manufacturing processes and technologies as the other plants that are based on approved BMW standards, to enable flexible and agile production.

Deeply rooted in the region, BMW also maintains a strategic partnership with South Carolina's renowned Clemson University and, in 2003, became the co-founder of Clemson University's International Center for Automotive Research (CU-ICAR). They collaborate on various forms of talent development as well as on joint research.

Together, we are delighted to welcome you to Upstate South Carolina and invite you to join us for two conference days filled with top presentations, discussions, an interactive poster session, an expert tutorial as well as an exclusive guided tour through the BMW Spartanburg plant.

We look forward to your participation!

PROGRAM COMMITTEE:



Dr. Sibylle Freitag
Presidium
Automotive Circle



Dr. Stefan M. Baginski
Department Manager
Body Shop
BMW Manufacturing
Co., LLC



Karl Loessl
Vice President
Body Shop
BMW Manufacturing
Co., LLC



Prof. Laine Mears
Professor & BMW
SmartState Endowed
Chair in Automotive
Manufacturing
Clemson University-ICAR

PLUS!

GUIDED TOUR THROUGH THE BMW PRODUCTION PLANT

As one of the highlights of the conference, BMW will open the factory doors of their plant in Spartanburg, South Carolina and invite all attendees of the conference to an extended guided tour through the new body shop production of the X models.

Take this opportunity to learn more about the flexible BMW Production System:

- ▶ production of multi-material car bodies
- ▶ capability to produce up to 450,000 vehicles per year
- ▶ production of several different drive train solutions
- ▶ manufacturing of multiple products on the same line

Gain first-hand insights on how BMW is preparing for some of the biggest future challenges in the automotive industry - electrification, flexibility and agile reaction to market demands.

See how the latest developments in production and joining technologies are used to assemble the multi-material, high performance body structures of the X models.



TUTORIAL

WEDNESDAY, SEPTEMBER 11, 2019

ENABLING INDUSTRY 4.0 FOR PLASTICS AND COMPOSITES

Take advantage of the unique opportunity to participate in a two-hour tutorial at Clemson University's renowned International Center for Automotive Research (CU-ICAR). Participate in a very practice-oriented workshop that covers the following topics:

- Elements of an Industry 4.0 System
- Implementation in Manufacturing
- Integration with Corporate Data Structures
- Enabling Technologies
- Industry 4.0 in Quality and Process Control
- Applications of Industry 4.0 in Composites Manufacturing
- Current and Future Perspectives
- Case Studies – Injection Molding
- Case Studies – Continuous Extrusion



Prof. Srikanth Pilla
Department of Automotive
Engineering
Clemson Composite Center



Dr. Saeed Farahani
Department of Automotive
Engineering
Clemson Composite Center

The Clemson University International Center for Automotive Research (CU-ICAR) is a 250-acre advanced-technology research campus where academia, industry, and government organizations come together to shape the future of the automotive industry. Students located at CU-ICAR have the opportunity to use world-class test facilities and to interact with automotive industry professionals. They are pursuing M.S. and Ph.D. degrees in Automotive Engineering through a graduate curriculum designed and executed with the automotive and manufacturing industries and centered on Systems Integration.

Location: Clemson University, International Center for Automotive Research,
4 Research Dr, Greenville, SC 29607, USA

PROGRAM

THURSDAY, SEPTEMBER 12, 2019

7.30 AM Registration at conference hotel

 **Coffee & breakfast snack**

8.45 AM Welcome

Dr. Sibylle Freitag, Automotive Circle, DE

9.00 AM Opening Address

Knudt Flor, BMW Manufacturing Co., LLC, US

MANUFACTURING INSIGHTS

9.15 AM The BMW X model Production System at Plant Spartanburg – Product Integration and Preparation for Future Models

Stefan Kerber, BMW Manufacturing Co., LLC, US

9.45 AM VCC Charleston Manufacturing Plant & Future Manufacturing Challenges

Olof Hedegård, Marc Parrish, Volvo Car Corporation, US

10.15 AM  Coffee & contacts /  Meet the speakers

INTELLIGENT PART PRODUCTION SOLUTIONS

10.45 AM Knowledge-Enabled Applications in Part Production and Assembly

Prof. Laine Mears, Prof. Srikanth Pilla, Clemson University, US

11.15 AM Optimizing the Lightweight Advantages of Aluminium

Bryan James, Constellium, US

ENABLING AGILITY IN MANUFACTURING I

11.45 AM Flexibilisation of Process Chains by Tailoring Material Properties

Prof. Marion Merklein, Institute of Manufacturing Technology, DE

12.15 PM  Lunch /  Meet the speakers

1.30 PM Artificial Intelligence Applied to Multi-Variant Production

Dr. Andy Henderson, Praemo, US

2.00 PM Modular Production Systems and Adaptive Material Flow

Peter Klueger, KUKA Deutschland GmbH, DE

LASER WELDING INNOVATIONS

2.30 PM Numerical Study of Laser Spot Welding on Zinc-Coated Steels

Joshua Solomon, General Motors Company, US

3.00 PM  Coffee & contacts /  Meet the speakers

3.30 PM Providing Flexible Application Possibilities for Laser Welding in Production

Jay Flowers, Abicor Binzel Laser Systems USA, US

4.00 PM Welding of Aluminum without Filler Wire for Automotive Closures Applications

Marc Auger, Coherent, US

4.30 PM Laserwelding of Aluminum as Key Success Factor for eMobility

Sebastian Moser, Brian Smith, Precitec, Inc., US

5.00 PM Poster Session: Agile Manufacturing in High Volume Production – Integrating Future Products and Technologies into the Production System

Clemson University, US

6.30 PM joined departure to

 **Networking dinner**

FRIDAY, SEPTEMBER 13, 2019

7.00 AM  **Coffee & breakfast snack**

8.00 AM Instructions and joint departure to guided plant tour

9.15 AM GUIDED TOUR
through the body shop of the BMW X series production



12.30 PM  Lunch /  Meet the speakers

ENABLING AGILITY IN MANUFACTURING II

1.30 PM **Smart Vacuum Fixture and Endeffector Concepts to Increase Output and Reduce Tooling Variety**

Dennis Kilb, J. Schmalz GmbH, DE

INNOVATIVE FASTENING SOLUTIONS

2.00 PM **Overcoming Existing Limitations of Flow Drill Technology**

Dr. Brandt Ruskiewicz, Semblex Corporation, US

 Coffee

2.45 PM **Flow Drill Fastening in Mixed Materials**

Jim Graham, Atlas Copco, US

3.15 PM **Assembly Processes in Multi-Material Application**

Troy Waldherr, TOX-Pressotechnik LLC, US

3.45 PM **Wrap-up and Farewell**

Dr. Sibylle Freitag, Automotive Circle

4.00 PM **End of conference**

Subject to change (status as of August 30, 2019)



**ONLINE REGISTRATION AT:
WWW.AUTOMOTIVE-CIRCLE.COM**

– conference seats are limited! –

CONFERENCE VENUE

Hyatt Regency Greenville
220 North Main Street
Greenville, South Carolina,
United States, 29601

The price for accommodation is 169 USD, plus applicable state and local taxes.

We kindly ask you to make your own hotel reservation until August 20, 2019.

CONFERENCE FEE

Early-Bird: 1,799 USD*
(for registrations received by August 11, 2019)

Standard: 1,999 USD*

Tutorial: 199 USD* (Separate registration is mandatory)

* All prices net.

For special prices and information concerning **group bookings** or **junior participation** please visit our website.

TERMS & CONDITIONS

To see full terms and conditions as well as further information visit our website at: www.automotive-circle.com

PICTURES

BMW Group, Vincentz Network

YOUR CONTACT

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REGISTER
NOW

**REGISTER BY AUGUST 11, 2019 AND
BENEFIT FROM THE EARLY BIRD FEE!**

Vincentz Network GmbH & Co. KG
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