

# IAV SPARK26



September 29, 2026  
**Program Day 1**

IAV Symposium on Pre-ignition,  
Auto-ignition, Reactivity, and Knock

September 29 – 30, 2026  
Alice Rooftop, Berlin

**08:45** **Welcome to IAV SPARK26**  
Marc Sens (IAV)

## Keynote Speech I

**09:00** **On the Importance on Renewable  
Fuels out of the View of VDA e.V.**

**Presenting Author:**  
Eric Woydte (VDA e.V.)

## Combustion Anomalies

Chair: Sandro Pino (Champion Ignition / Tenneco Group)

**09:30** **Experimental Investigations of Oil-  
induced Combustion Anomalies in  
Hydrogen Engines Using Dosing  
and Engine-based Methods**

**Presenting Author:**  
Peter Kappacher (TU Graz)

**Co-Authors:**  
David Kapeller (TU Graz)  
Dr. Theo Maulbetsch (Fuchs Lubricants GmbH)  
Peter Günter (Liebherr Machines Buell SA)  
Dr. Gottfried Lurf (AVL List GmbH)

**10:00** **Lube Oil Formulation as a Lever  
to Mitigate Combustion Anomalies  
in Liebherr Off-highway Hydrogen-  
fueled ICE**

**Presenting Author:**  
Vincent Boucand (Liebherr Machines Buell SA)

**10:30** **Coffee Break**

## Passive Pre Chamber Spark Plug I

Chair: Prof. Dr. André Kulzer (IFS, University of Stuttgart) and  
Matthias Biehl (Bosch)

**11:00** **From Twin Spark to Pre-chamber:  
Ignition System Upgrade Strategy  
for a 6.6L Gasoline V8**

**Presenting Author:**  
Dr. Antowan Zyada (General Motors)

**Co-Authors:**  
Michael Riess (IAV)  
Marcus Woebke (IAV)

**11:30** **Evaluation of a Passive Pre-  
chamber System for a High-  
performance Turbocharged Engine**

**Presenting Author:**  
Giovanni Bonandrini (Automobili Lamborghini SpA)

**Co-Authors:**  
Antonio Aliperti (Automobili Lamborghini SpA)  
Davide Bizzari (Automobili Lamborghini SpA)  
Paolo Scarpato (Automobili Lamborghini SpA)

**12:00** **H18 High Efficiency Engine with  
TJI Technology**

**Presenting Author:**  
Fabiano Ferreira Pinto (Horse Technologies SL)

**Co-Authors:**  
Dimitrios Karageorgiou (Aramco Europe)  
Matej Myslivecek (Aramco Europe)  
Thierry Prunier (Ampere Renault Group)

**13:00** **Lunch Break**

September 29, 2026

# Program Day 1

## Passive Pre Chamber Spark Plug II

Chair: Ragnar Burenius (HORSE Powertrain) and Prof. Dr. Hermann Rottengruber (Otto von Guericke University Magdeburg)

### 14:00 Physics-based 0D/1D Modelling of Pre-chamber Combustion for SACI Applications

**Presenting Author:**

Ferdinand Meyer (IFS, University of Stuttgart)

**Co-Authors:**

Prof. Andre Casal Kulzer (IFS, University of Stuttgart)  
Dr. Qirui Yang (FKFS)  
Tobias Tietz (TME, RWTH Aachen)  
Prof. Marco Günther (TME, RWTH Aachen)

### 14:30 Impact of Injection Strategy on Autoignition and Combustion Regime of Ultra-lean SACI Combustion with RON95E10

**Presenting Author:**

Tobias Tietz (TME, RWTH Aachen)

**Co-Authors:**

Prof. Stefan Pischinger (TME, RWTH Aachen)  
Prof. Marco Günther (TME, RWTH Aachen)

### 15:00 The Effect of Fuels with Higher Alcohol Content on the Ignition System and Combustion Anomalies in Gasoline Engines

**Presenting Author:**

Karsten Michels (Volkswagen AG)

**Co-Authors:**

Dr. Max Schüttenhelm (Volkswagen AG)  
Prof. Thomas Garbe (Volkswagen AG)

### 15:30 Renewable Methanol for Spark-ignition Passenger-car Engines: Potential of Direct Injection and Pre-chamber Ignition for Efficient Low-emission Combustion

**Presenting Author:**

Dr. Metin Korkmaz (Champion Ignition / Tenneco Group)

**Co-Authors:**

Sandro Pino (Champion Ignition / Tenneco Group)  
Maximilian Dobberkau (TU Dresden)  
Ronny Werner (TU Dresden)  
Frank Atzler (TU Dresden)

## 16:00 Coffee Break

### Knock Suppression

Chair: Dr. Michael Fischer (40 Yo ICE)

### 16:30 Reduced Emissions and Expanded Stoichiometric Operation with Early Intake Valve Closing and Elevated Charge Motion

**Presenting Author:**

Dr. Justin Ketterer (General Motors)

**Co-Authors:**

Andrew Aerts (General Motors)  
Anbarasu Muniappan (General Motors)  
Kevin Luchansky (General Motors)

### Panel

Chair: Marc Sens (IAV) and Dr. Michael Fischer (40 Yo ICE)

### 17:00 Combustion Engines: Future Visions and Realities

Join a candid, interactive discussion with the expert audience and the scientific advisory board, moderated by IAV.

## 17:55 End of Day 1

We thank our sponsor



# September 30, 2026

## Program Day 2

**08:45**    **Welcome to Day 2**  
Marc Sens

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**Keynote Speech II**  
Chair: Marc Sens (IAV)

**09:00**    **To be announced**

**Presenting Author:**  
tbc

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**Alternative Fuels**  
Chair: Dr. Olaf Toedter (Karlsruhe Institute of Technology)

**09:30**    **3D Ignition Modelling in Alternative-fuel Engines: Passive Pre-chamber Design and Cycle-to-cycle Variability**

**Presenting Author:**  
Dr. Lorenzo Sforza (Politecnico di Milano)

**Co-Authors:**  
Alessandro Nodi (Politecnico di Milano)  
Prof. Tommaso Lucchini (Politecnico di Milano)  
Prof. William Northrop (University of Minnesota)

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**10:00**    **Sustainable Fuels in High Performance Engines: Transferring Racing Experience to Future Road Powertrains**

**Presenting Author:**  
Alessandro Ferrari (Haltermann Carless Group)

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**10:30**    **Investigation of the Knock Behavior of the Spark Ignited Argon Power Cycle**

**Presenting Author:**  
Lukas Kniestedt (WTZ Roßlau gGmbH)

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**11:00**    **Coffee Break**

**Ignition Systems**  
Chair: Ryan Heinbuch (General Motors)

**11:30**    **Monitoring Spark Plug Wear Using Smart Ignition Coil Diagnostic Signal**

**Presenting Author:**  
Dr. Federico Ricci (Champion Ignition / Tenneco Group)

**Co-Authors:**  
Stefan Papi (Champion Ignition / Tenneco Group)  
Massimo Dal Re (Champion Ignition / Tenneco Group)  
Massimiliano Avana (University of Perugia)

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**12:00**    **The Influence of Operating Parameters on Spark Plug Wear and its Prediction Potential**

**Presenting Author:**  
Celine Krnac (Karlsruhe Institute of Technology)

**Co-Authors:**  
Dr. Olaf Toedter (Karlsruhe Institute of Technology)  
Moritz Grüninger (Karlsruhe Institute of Technology)

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**12:30**    **Measurement of In-cylinder Pressure through Elastic Deformation of the Spark Plug Housing**

**Presenting Author:**  
Albert Guggenheimer (University of Applied Sciences Karlsruhe)

**Co-Authors:**  
Prof. Maurice Kettner (University of Applied Sciences Karlsruhe)  
Dr. Nicolas Wippermann (multitorch Services GmbH)  
Dr. Steffen Kuhnert (multitorch Services GmbH)

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**13:00**    **Lunch Break**

# September 30, 2026

## Program Day 2

### Active Pre Chamber Spark Plug

Chair: Dr. Michael Fischer (Honda)

**14:00**     **Experimental and Numerical Investigation of Active Turbulent Jet Ignition Quenching Limits**

**Presenting Author:**

Dimitrios Karageorgiou (Aramco Europe)

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**14:30**     **Influence of the Pre-chamber Gas Composition on the Ignition Process of an Active Pre-chamber**

**Presenting Author:**

Frank Wittmann (University of Erlangen)

**Co-Authors:**

Christopher Kowis (University of Erlangen)  
Rafael Clemente Mallada (University of Erlangen)  
Dr. Sebastian Rieß (University of Erlangen)  
Prof. Michael Wensing (University of Erlangen)

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**15:00**     **Coffee Break**

### Combustion

Chair: Dr. Christian Maas (Volkswagen AG)

**15:30**     **In-situ Measurement of Crank Resolved Fuel Concentration near Spark Plug in Catalytic Light-off Conditions**

**Presenting Author:**

Dr. Kulwinder Singh (General Motors)

**Co-Author:**

Ashish Shah (General Motors)

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**16:00**     **Knock Analysis in Hypercar Engine Development**

**Presenting Author:**

Dr. Dáire James Corrigan (Bugatti Rimac)

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**16:30**     **End of Day 2**  
Marc Sens (IAV)

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