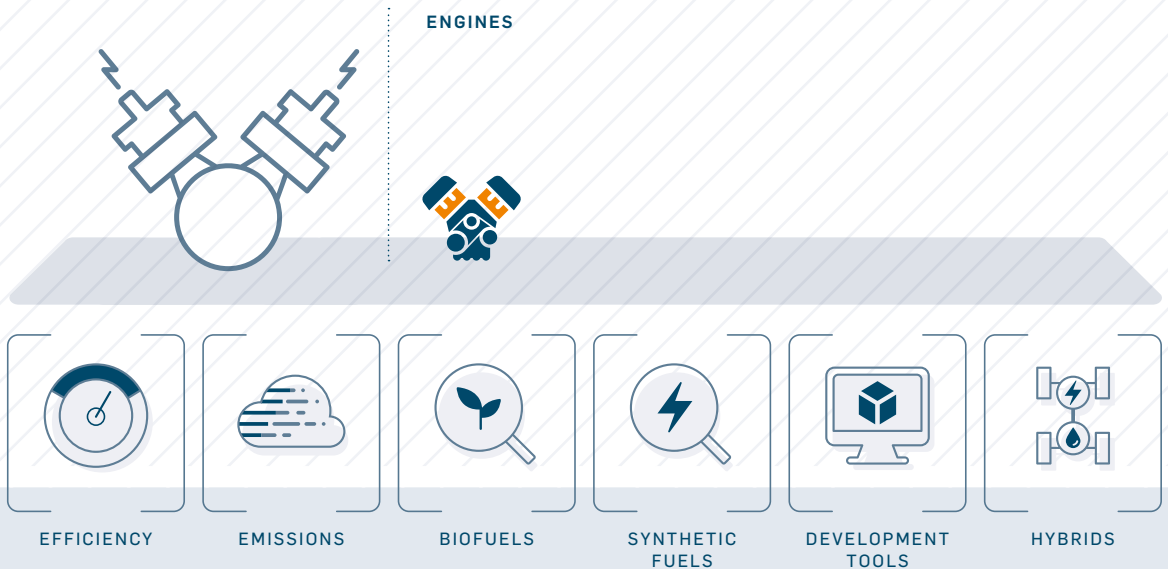


Combustion SI

PLANNING GROUP 2



COORDINATOR

Dr. André Casal Kulzer,
Porsche

PROJECT MANAGEMENT

Ralf Thee, FVV

PG2 ONLINE



RESEARCH PRIORITIES

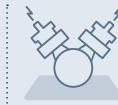
Planning group 2, ›Combustion SI‹, is dedicated to the following topics:

- Efficiency of the engine
- Hybridisation
- Alternative fuels
- Artificial intelligence in development, big data and digitalisation

And tackles the following lines of research/focuses:

- Combustion modelling/simulation
- Combustion processes and fuel preparation
- Water injection
- Wall heat transfer
- Knocking and pre-ignition
- Particle formation in the combustion chamber
- Downsizing concepts

PG 2 | RESEARCH PROJECTS



NO	TITLE // FUNDING ORGANISATION // DURATION	PROJECT COORDINATOR
Planned projects		
M0120	Oil Input into Combustion II	Dr. Eike Stitterich, Hengst
M0220	DIH ₂ jet (DI Hydrogen Combustion Process) // CORNET, FVV-EM	Michael Günther, IAV
M0221	Engine Knock Intensity Modelling for Future Fuels	Dr. André Casal Kulzer, Porsche
M0421	Cold Start Optimisation for M-100 Methanol Engine	Dr. Helmut Ruhland, Ford Werke
M0720	Near-zero Emission Concept for H ₂ DI Otto Engines // FVV-EM	Dr. David Lejsek, Robert Bosch Dr. Wolfgang Samenfink, Robert Bosch
M1221	Prediction of Inhomogeneous H ₂ -SI Combustion	Dr. Maximilian Brauer, IAV
M1319	Oxyfuel Combustion Process for Stationary Gas Engines	Marc Sens, IAV
M1721	Initial Pre-ignition II	Albert Breuer, Ford-Werke
M1821	Renewable EN 228 Gasoline	Rupali Tripathi, Neste Oyj
M2120	Preferential Evaporation of Alternative Fuel Mixtures // BMWi/AiF	Jérôme Munier, Porsche
M2520	Test Bench Investigation Aged Gasoline Fuel	Dr. Bernd Becker, IAV
M2920	Innovative RDE Engine-out Emission Reduction	Christine Burkhardt, EnginOS Futoshi Yoshimura, Nissan Motor
M3720	Mixture Preparation / Homogenization with H ₂ -DI // BMWi/AiF	Michael Rieß, IAV
M4220	Multicomponent Fuels / Wall Film Interaction // BMWi/AiF	Jérôme Munier, Porsche
M4320	Fuel Composition – RDE and Soot Formation // FVV-EM	Dr. Christian Töpel, Freyberger engineering Dr. Lars Menger, BMW
Ongoing projects		
1343	Spray Modelling for DI Gasoline Engines // FVV-EM // 01-01-2019 to 31-12-2021	Dr. Christian Jörg, Hitachi Astemo Europe
1348	Fuel Composition for CO ₂ Reduction // FVV-EM // 01-03-2019 to 28-02-2022	Nozomi Yokoo, Toyota Motor Corporation Dr. Yoshihiro Okada, Toyota Motor Corporation Terutoshi Tomoda, Toyota Motor Corporation
1349	Influencing Wall Heat Losses in SI Engines // BMWi/AiF, FVV-EM // 01-01-2019 to 30-09-2021	Dr. Thorsten Unger, Porsche
1357	Homogenisation Model SI Engines II // BMWi/AiF // 01-07-2019 to 31-03-2022	Marc Sens, IAV
1367	Water Injection in Spark-Ignition Engines II // FVV-EM // 01-10-2019 to 31-03-2022	Dr. André Casal Kulzer, Porsche



NO	TITLE // FUNDING ORGANISATION // DURATION	PROJECT COORDINATOR
1370	Fast Knocking Prediction for Gasoline Engines // FVV-EM // 01-10-2019 to 30-09-2021	Dr. Michael Fischer, Tenneco
1374	Fuel Influence on Particulate Characteristics // BMWi/AiF // 01-09-2019 to 31-08-2021	Dr. Wolfgang Samenfink, Robert Bosch
1387	Benchmark Platform for Scale Resolving Simulations // BMWi/AiF // 01-01-2020 to 30-06-2022	Kathrin Giefer, Ford-Werke
1426	Heuristic Search and Deep Learning // BMWi/AiF // 01-11-2020 to 30-04-2023	Dr. Aras Mirfendreski, TOYOTA GAZOO Racing Europe
1431	SACI Combustion System with Active Pre-Chamber // FVV-EM // 01-01-2021 to 30-06-2023	Dr. André Casal Kulzer, Porsche
1434	ICE2030 // FVV-EM // 01-02-2021 to 31-01-2023	Arndt Döhler, Opel Automobile
1435	Modelling Turbulence // FVV-EM, CORNET // 01-01-2021 to 31-12-2022	Dr. David Lejsek, Robert Bosch
Completed projects		
1260	Thermodynamics Top Land Volume // BMWi/AiF, FVV-EM // 01-01-2017 to 30-04-2021	Oliver Dingel, IAV
1281	Pilot Injection Gas Engine // BMWi/AiF // 01-08-2017 to 31-03-2021	Dr. Martin Schenk, BMW
1283	Oil Input into Combustion // FVV-EM, BMWi/AiF // 01-08-2017 to 31-01-2020	Dr. Eike Stitterich, Hengst
1307	ICE2025+: Ultimate System Efficiency // FVV-EM, FVV-EM // 01-03-2018 to 31-10-2020	Arndt Döhler, Opel Automobile
1311	Gas Pulsation and Turbochargers Interaction // BMWi/AiF // 01-01-2018 to 30-06-2021	Marc Sens, IAV
1313	Engine Knock Model // BMWi/AiF // 01-01-2018 to 30-11-2020	Dr. André Casal Kulzer, Porsche
1317	Spray Diagnostics of Gasoline E-Fuels // FVV-EM // 01-08-2018 to 31-03-2020	Dr. Eberhard Kull, Vitesco Technologies
1328	Initial Pre-ignition // CORNET, FVV-EM // 01-05-2018 to 31-12-2020	Albert Breuer, Ford-Werke
1336	PostOxidation // CORNET, FVV-EM, BMWi/AiF // 01-10-2018 to 28-02-2021	Christine Burkhardt, EnginOS Yoshihiro Imaoka, Nissan Motor
1395	Experimentally Validated LES Models for Wall Heat Transfer in Otto Engines // CORNET, FVV-EM // 01-01-2020 to 31-03-2021	Gabriel Dilmac, Porsche