

Powertrain Engineering Selected Papers

Hybrids/Energy Storage

■ Advances in model-based SoC determination for HEV traction batteries.

A. Sciarretta, V. Sauvant-Moynot,
I. Faille

AEA - European Conference
on Alternative Energies for
the Automotive Industry
Poitiers, France, April 2-3, 2008

■ Design optimisation and optimal control for hybrid vehicles.

G. Rousseau, D. Sinoquet, Y. Milhau
ENGOPT International Conference
on Engineering Optimization
Rio de Janeiro, Brazil,
June 1-5, 2008

■ Modeling and control of a mild-hybrid city car with a downsized turbo-charged CNG engine.

P. Tona, P. Gautier
International Symposium
on Advanced Vehicle Control
Kobe, Japan, October 6-9, 2008

■ VEHGAN: the benefits of using downsized CNG engine in hybrid.

S. Venturi, R. Tilagone,
D. Soleri, P. Tona
AEA - European Conference
on Alternative Energies for
the Automotive Industry
Poitiers, France,
April 2-3, 2008



Mild-hybrid urban vehicle

■ Environmental performances evaluation of natural gas hybrid demonstrators based on two commercial vehicles: a Toyota Prius II and a Smart Fortwo.

R. Tilagone (IFP Energies nouvelles),
C. Etienne (GDF Suez)
Hybrid and Vehicles Energy
Management
Braunschweig, Germany,
February 14-15, 2007

■ Real-time control strategies for hybrid vehicles issued from optimization algorithm.

G. Rousseau, D. Sinoquet,
A. Sciarretta
Hybrid and Vehicles Energy
Management
Braunschweig, Germany,
February 14-15, 2007

Calibration

■ Optimization for engine calibration.

D. Sinoquet, H. Langouet,
Q.H. Tran, L. Metivier
ENGOPT International Conference
on Engineering Optimization
Rio de Janeiro, Brazil,
June 1-5, 2008

■ Drive cycle reproduction on high dynamic test bed in order to perform transient calibration.

M. Castagné, P. Moulin,
A. Del Mastro
IAV Conference - DOE
in Engine Development
Berlin, Germany,
May 10-11, 2007

■ **Enhanced phenomenological modelling of conventional and HCCI diesel combustion using optimization algorithms for automatic calibration.**

M. Miche, F.A. Lafossas,
J. Guillemin

ICE - International Conference on Engines for Automobile
Capri, Italy, September 16-20, 2007

Biofuels

■ **Ethanol as a diesel base fuel: an engine evaluation and optimization.**

L. Pidol, B. Lecointe, N. Jeuland,
X. Montagne

SIA - Conférence de la Société des Ingénieurs de l'Automobile
Rouen, France, May 28-29, 2008

■ **Glycerin for new biodiesel formulation.**

A. Jaecker, I. Durand, G. Hillion,
B. Delfort, X. Montagne
Oil & Gas Science and Technology -
Revue d'IFP Energies nouvelles -
Vol. 63, No 4, 2008, pp. 395-404

■ **Optimum diesel fuel for future clean diesel engines.**

Rudolf R. Maly (Daimler),
V. Schaefer (BMW), H. Hass (Ford
Forschungszentrum Aachen),
G.F. Cahill (PSA Peugeot Citroën),
P. Rouveiolles (Renault), A. Reoj
(Volvo Technology Corporation),
R. Wegener (Volkswagen AG),
X. Montagne, A. Di Pancrazio,
J. Kashdan (IFP Energies nouvelles)
SAE Fuels & Emissions Conference
Cape Town, South Africa,
January 23-25, 2007

Diesel

■ **A new simulation step towards virtual bench through the challenging case of two-stage turbocharger diesel engine control design.**

P. Gautier, A. Albrecht, P. Moulin,
A. Chasse, L. Fontvieille, A. Guinois,
L. Doleac

SAE World Congress
Detroit, USA, April 14-17, 2008

■ **Using multiple injection strategies in diesel combustion: potential to improve emissions, noise and fuel economy trade-off in low CR engines.**

S. Mendez, B. Thirouard
SAE World Congress
Detroit, USA, April 14-17, 2008

■ **Model-based compensation of the injector dynamics for multiple-injection combustion patterns.**

A. Sciarretta, G. Corde
ICE - International Conference on Engines for Automobile
Capri, Italy, September 16-20, 2007

HCCI diesel

■ **Controlling the start of combustion on an HCCI diesel engine.**

J. Chauvin, M. Hillion, N. Petit
(École des Mines de Paris)
ACC - American Control Conference
Seattle, USA, June 11-13, 2008

■ **Effect of fuel characteristics on early injection diesel HCCI engines performances.**

L. Pesant, L. Forti, N. Jeuland
SAE Powertrains, Fuels and
Lubricants
Rosemont, USA, October 6-9, 2008

■ **Quantitative pollutant modeling: an essential prerequisite for diesel HCCI and LTC engine design.**

V. Knop, H. Kircher, S. Jay,
P. Beard, A. Pires Da Cruz, O. Colin
Oil & Gas Science and Technology -
Revue d'IFP Energies nouvelles -
Vol. 63, No 4, 2008, pp. 495-515

■ **Optimization of a low NOx emission diesel HCCI prototype vehicle.**

S. Magand, E. Watel, M. Castagné,
D. Soleri, O. Grondin (IFP Energies
nouvelles), S. Devismes (Faurecia),
S. Moroz (Valeo).
THIESEL Thermo - and Fluid Dynamic
Processes in Diesel Engines Conf.
Valencia, Spain, September 9-12, 2008

■ **HCCI engine combustion control using EGR: gas composition evolution and consequences on combustion processes.**

A. Pipereel, X. Montagne (IFP Energies
nouvelles), P. Dagaut (CNRS)
ICE - International Conference
on Engines for Automobile
Capri, Italy, September 16-20, 2007

■ **Reduction of HC and CO emissions at low load for HCCI diesel combustion.**

G. Bression, D. Soleri (IFP Energies
nouvelles), S. Savy, S. Dehoux,
D. Azoulay, H. Ben-Hadj Hamouda
(Renault), L. Doradoux, B. Bastardie
(Delphi), N. Lawrence (Mechadyne).
Symposium Towards Clean Diesel
Engine
Naples, Italy, June 20-22, 2007

Gasoline

■ **Towards cost reduction of downsizing: combining scavenging with port fuel injection.**

P. Leduc, X. Gautrot, A. Pagot,
G. Bression
SIA - Conférence de la Société
des Ingénieurs de l'Automobile
Strasbourg, France,
November 28-29, 2007



■ **A new approach for variable displacement: the OVALID concept.**

A. Pagot, P. Anselmi, C. Ternel,
X. Gautrot
Fisita
Munich, Germany,
September 14-19, 2008

■ **A new approach to GDI turbo engine: combining new technology to low cost applications.**

P. Anselmi, X. Gautrot, A. Pagot,
P. Leduc
Internationales Stuttgarter
Symposium Automobil
und Motorentechnik
Stuttgart, Germany, March 20-21, 2007

■ **Airpath estimation for a turbocharged SI engine with variable valve timing.**

T. Leroy, J. Chauvin, G. Le Solliec,
G. Corde
ACC - American Control Conference
New York, USA, July 11-13, 2007

CAI gasoline

■ **Influence of the local mixture characteristics on the combustion process in a CAI engine.**

V. Knop, B. Thirouard, J. Cheral
SAE - International Powertrains Fuels
and Lubricants Congress
Shanghai, China, June 23-25, 2008

Control

■ **Double stage turbocharger control strategies development.**

A. Chasse, P. Moulin, P. Gautier,
A. Albrecht (IFP Energies nouvelles),
L. Fontvieille, A. Guinois, L. Doleac
(Renault).
SAE World Congress
Detroit, USA, April 14-17, 2008

■ **Modelling and control of the air system of a turbocharged gasoline engine.**

P. Moulin, J. Chauvin, Y. Bilal
IFAC World Congress
Seoul, Korea, July 6-11, 2008

■ **Downsized SI engine control: a torque-based design from simulation to vehicle.**

G. Le Solliec, F. Le Berr,
G. Corde (IFP Energies nouvelles),
G. Colin (LME)
SAE World Congress
Detroit, USA, April 16-19, 2007



■ **Experimental control of variable cam timing actuators.**

J. Chauvin (IFP Energies nouvelles),
N. Petit (École des Mines de Paris)
IFAC - Symposium on Advances
in Automotive Control
Monterey Coast, August 20-22, 2007

Modeling/Simulation

■ **Modelling of combustion and nitrogen oxide formation in hydrogen-fuelled internal combustion engines within a 3D CFD code.**

V. Knop, A. Benkenida, S. Jay, O. Colin
International Journal of Hydrogen
Energy
Vol. 33, 2008, pp. 5083-5097

■ **Numerical and physical basis of an Eulerian multi-phase flow model for the simulation of the liquid fuel injection in internal combustion engines.**

F. Bayoro, C. Habchi (IFP Energies
nouvelles), E. Daniel (Aix-Marseille
University)
ILASS 2008
Como Lake, Italy,
September 8-10, 2008

■ **Large eddy simulation of flow and combustion in spark ignition engines: a new CFD approach in the engine design process.**

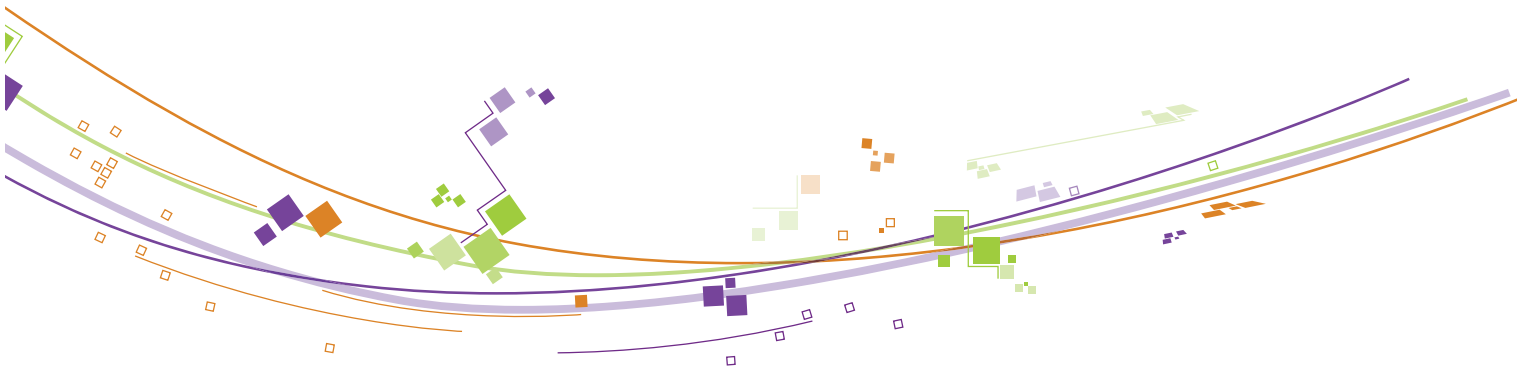
S. Richard (IFP Energies nouvelles),
D. Veynante (CNRS)
Scientific Award of the BMW Group -
A desire to shape the future - 2007

■ **Predicting cyclic variability in a 4 valve SI engine using LES and the AVBP CFD code.**

O. Vermorel (Cerfacs), S. Richard,
O. Colin, C. Angelberger, A. Benkenida
(IFP Energies nouvelles)
IMEM - International Multidimensional
Engine Modeling
Vol. 33, 2008, pp. 5083-5097
Detroit, USA, April 15, 2007

■ **Modeling engine turbulent auto-ignition using tabulated detailed chemistry.**

G. Subramanian, A. Pires Da Cruz,
O. Colin (IFP Energies nouvelles),
L. Vervisch
(LMFN, CNRS-CORIA)
SAE World Congress
Detroit, USA, April 16-19, 2007



■ **Modeling coupled processes of CO and soot formation and oxidation for conventional and HCCI diesel combustion.**

A. Sciaretta, G. Corde
ICE - Internal Conference on Engines for Automobiles
 Capri, Italy, September 16-20, 2007

After-treatment

■ **Towards CO and HC after-treatment devices for the next generation of diesel engines.**

S. Zinola, J. Lavy, A. Jaecker
SAE International Powertrains Fuels and Lubricants Congress
 Shanghai, China, June 23-25, 2008

■ **Fuel-borne catalyst assisted DPF regeneration on a Renault truck MD9 engine outfitted with SCR.**

G. Plassat (Ademe), G. Pichon, R. Vonarb (Volvo Powertrain), L. Rocher (Rhodia), J.C. Fayard (Comela), E. Joubert (Aaqius & Aaqius), B. Martin, J. Lavy (IFP Energies nouvelles)
JSAE - SAE International Fuels and Lubricants Meeting
 Kyoto, Japan, July 23-27, 2007

■ **Investigating Unburned Hydrocarbon (UHC) emissions in a GDI engine (homogeneous and stratified modes) using formaldehyde LIF and fast-FID measurements in the exhaust port.**

L. de Francqueville, B. Thirouard, J. Chereil
SAE Powertrain and Fluid Systems Conference and Exhibition
 Chicago, USA, October 29-31, 2007

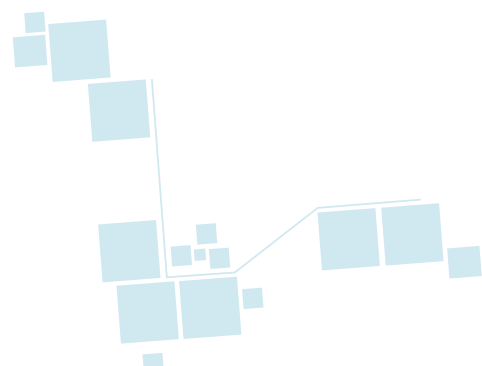
Optical diagnostic

■ **Tracer LIF visualisation studies of piston-top fuel films in a wall-guided, low NOx diesel engine.**

J. Kashdan
SAE Powertrains, fuels and lubricants
 Rosemont, USA, October 6-9, 2008

■ **Study of the correlation between mixing and auto-ignition processes in high pressure diesel jets.**

G. Bruneaux
SAE World Congress
 Detroit, USA, April 16-19, 2007



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