



PUBLICATIONS

de Stéphane PASQUIERS
Directeur de Recherche au CNRS

Laboratoire de Physique des Gaz et des Plasmas
UMR 8578 du CNRS



Septembre 2015

Thèmes des publications

Cinétique des COV et des hydrocarbures
Traitement d'effluents gazeux, dépollution, déclenchement de combustion
(depuis 2000)

Physique des décharges impulsionnelles à haute pression
(depuis 1990)

Lasers de puissance UV (XeCl*) et IR (HF/DF)
(1990-2004)

Sections efficaces d'ionisation des COV et des hydrocarbures
(2003-2010)

Elargissement de raies atomiques à haute pression
(1993)

Décharges micro-ondes et propagation d'ondes
(1988-1992)

Experimental Study and Kinetic Modeling for Ethanol Treatment by Air Dielectric Barrier Discharges

S. Lovascio, N. Blin-Simiand, L. Magne, F. Jorand, S. Pasquiers
Plasma Chemistry and Plasma Processing, 35 (2015) 279-301.

On the influence of anode composition on the pattern of a nanosecond diffuse discharge at atmospheric pressure

A. Chollet, S. Pasquiers, P. Jeanney, P. Tardiveau, P. Désesquelles
IEEE Transactions on Plasma Science, 42 (2014) 2344-2345.

Diffuse and streamer discharges at intermediate pressures

P. Tardiveau, S. Pasquiers
Chapitre 9 du livre *Runaway electrons preionized diffuse discharges*.
Ed. V. Tarasenko, Nova Science Publishers, Series *Electrical Engineering Developments*, 2014.
ISBN: 978-1-63321-940-3.

Large conical discharge structure of an air discharge at atmospheric pressure in a point-to-plane geometry

F. Pechereau, P. Le Delliou, J. Jánský, P. Tardiveau, S. Pasquiers, A. Bourdon.
IEEE Transactions on Plasma Science, 42 (2014) 2346-2347.

Effect of oxygen on the conversion of acetaldehyde in homogeneous plasmas of N₂/O₂/CH₃CHO mixtures

W. Faider, S. Pasquiers, N. Blin-Simiand, L. Magne
Plasma Sources Science and Technology, 22 (2013) 065010 (14pp).

Kinetics of organic molecules in pulsed plasmas of nitrogen or N₂/O₂ mixtures at near atmospheric pressure

S. Pasquiers, N. Blin-Simiand, L. Magne
Plasma Physics and Controlled Fusion, 55 (2013) 124023 (10pp).

Role of quenching of metastable states in acetaldehyde decomposition by a non-equilibrium nitrogen plasma at sub-atmospheric pressure

W. Faider, S. Pasquiers, N. Blin-Simiand, L. Magne
Journal of Physics D : Applied Physics, 46 (2013) 105202 (16pp).

Towards a kinetic understanding of the ignition of air-propane mixture by a non-equilibrium discharge: the decomposition mechanisms of propane

S. Pasquiers, S. Bentaleb, P. Jeanney, N. Blin-Simiand, P. Tardiveau, L. Magne, K. Gadonna, N. Moreau, F. Jorand
International Journal of Aerodynamics, 3 (2013) 135-158.
Special Issue on: "Plasmas for Aerodynamics and Combustion".

Effect of oxygen percentage on the removal of acetaldehyde by dielectric barrier discharge

O. Koeta, N. Blin-Simiand, S. Pasquiers, F. Jorand, A. Bary
International Journal of Plasma, Environmental Science and Technology, 6 (2012) 227-232.

Décharges hors-équilibre à pression atmosphérique dans les milieux confinés ou alvéolaires

P. Tardiveau, S. Pasquiers
Chapitre II-1 du livre « Plasma et son environnement », p.115-136.
Collection *Intégrations des savoirs et des savoir-faire* éditée par Publications MRCT-CNRS (2012).
ISBN : 978-2-918701-09-5

Ethanol/Acetone mixtures conversion in air Dielectric Barrier Discharges

S. Lovascio, N. Blin-Simiand, F. Jorand, P. Jeanney, S. Pasquiers
International Journal of Plasma, Environmental Science and Technology, 6 (2012) 111-118.

Comparative study of air-propane and air-heptane mixtures ignition by nanosecond pulsed discharges

P. Tardiveau, S. Bentaleb, P. Jeanney, F. Jorand, S. Pasquiers
International Journal of Plasma, Environmental Science and Technology, 6 (2012) 130-134.

Role of nitrogen metastable states in non-thermal plasma conversion of Volatile Organic Compounds

S. Pasquiers, W. Faider, N. Blin-Simiand, L. Magne, P. Jeanney, F. Jorand
International Journal of Plasma, Environmental Science and Technology, 6 (2012) 149-155.

Decomposition of acetaldehyde in atmospheric pressure filamentary nitrogen plasma

O. Koeta, N. Blin-Simiand, W. Faider, S. Pasquiers, A. Bary, F. Jorand
Plasma Chemistry and Plasma Processing, 32 (2012) 991-1023.

Experimental and numerical study of the propagation of a discharge in a capillary tube in air at atmospheric pressure

J. Jansky, P. Le Delliou, F. Tholin, P. Tardiveau, A. Bourdon, S. Pasquiers
Journal of Physics D : Applied Physics, 44 (2011) 335201 (12 pp).

Propagation of an air discharge at atmospheric pressure in a capillary glass tube : influence of the tube radius on the discharge structure

J. Jansky, P. Le Delliou, F. Tholin, Z. Bonaventura, P. Tardiveau, A. Bourdon, S. Pasquiers
IEEE Transactions on Plasma Science, 39 (2011) 2106-2107.

Filamentation of a nanosecond pulse corona discharge in air-propane mixtures at atmospheric pressure

S. Bentaleb, P. Tardiveau, N. Moreau, P. Jeanney, F. Jorand, S. Pasquiers
IEEE Transactions on Plasma Science, 39 (2011) 2236-2237.

Nanosecond pulsed discharges phenomenology in micrometer sized radially confined air gap

P. Le Delliou, P. Tardiveau, P. Jeanney, G. Bauville, S. Pasquiers
IEEE Transactions on Plasma Science, 39 (2011) 2686-2687.

Point-to-plane discharge on an anisotropic ceramic-matrix composite layer at atmospheric pressure

H. Nizard, P. Jeanney, S. Bentaleb, B. Drazenovic, P. Tardiveau, S. Pasquiers
IEEE Transactions on Plasma Science, 39 (2011) 2188-2189.

Electron impact ionization cross-sections of n-heptane

J.R. Vacher, F. Jorand, N. Blin-Simiand, S. Pasquiers
International Journal of Mass Spectrometry, 295 (2010) 78-84.

Propane dissociation in a non-thermal high pressure nitrogen plasma

N. Moreau, S. Pasquiers, N. Blin-Simiand, L. Magne, F. Jorand, C. Postel, J-R. Vacher
Journal of Physics D : Applied Physics, 43 (2010) 285201 (14pp).

Detailed Characterization of 2-Heptanone Conversion by Dielectric Barrier Discharge in N₂ and N₂/O₂ Mixtures

A. Chiper, N. Blin-Simiand, M. Heninger, H. Mestdagh, P. Boissel, F. Jorand, J. Lemaire, J. Leprovost, S. Pasquiers, G. Popa, C. Postel
Journal of Physical Chemistry A, 114 (2010) 397-407.

Diffuse mode and diffuse-to-filamentary transition in a high pressure nanosecond scale corona discharge under high voltage

P. Tardiveau, N. Moreau, S. Bentaleb, C. Postel, S. Pasquiers
Journal of Physics D : Applied Physics, 42 (2009) 175202 (11pp).

OH kinetic in high-pressure plasmas of atmospheric gases containing C₂H₆ studied by absolute measurement of the radical density in a pulsed homogeneous discharge

L. Magne, S. Pasquiers, K. Gadonna, P. Jeanney, N. Blin-Simiand, F. Jorand, C. Postel
Journal of Physics D : Applied Physics, 42 (2009) 165203 (17pp).

Electron impact ionization of formaldehyde

J.R. Vacher, F. Jorand, N. Blin-Simiand, S. Pasquiers
Chemical Physics Letters, 476 (2009) 178-181.

Removal of formaldehyde in nitrogen and in dry air by a DBD : importance of temperature and role of nitrogen metastable states

N. Blin-Simiand, S. Pasquiers, F. Jorand, C. Postel, J-R. Vacher
Journal of Physics D : Applied Physics, 42 (2009) 122003 (5pp).

OH kinetics in photo-triggered discharges used for VOCs conversion

L. Magne, N. Blin-Simiand, K. Gadonna, P. Jeanney, F. Jorand, S. Pasquiers, C. Postel
European Physical Journal : Applied Physics, 47 (2009) 22816 (9pp).

Oxidation of acetylene in atmospheric pressure pulsed corona discharge cell working in the nanosecond regime

M. Redolfi, N. Aggadi, X. Duten, S. Touchard, S. Pasquiers, K. Hassouni
Plasma Chemistry and Plasma Processes, 29 (2009) 173-195.

Plasma reactivity and plasma-surface interactions during treatment of toluene by a dielectric barrier discharge

N. Blin-Simiand, F. Jorand, L. Magne, S. Pasquiers, C. Postel, J-R. Vacher
Plasma Chemistry and Plasma Processes, 28 (2008) 429-466.

Nanosecond scale discharge dynamics in high pressure air

P. Tardiveau, N. Moreau, F. Jorand, C. Postel, S. Pasquiers, P. Vervisch
IEEE Transactions on Plasma Science, 36 (2008) 894-895.

Partial ionization cross-sections of acetone and 2-butanone

J-R. Vacher, F. Jorand, N. Blin-Simiand, S. Pasquiers
International Journal of Mass Spectrometry, 273 (2008) 117-125.

Kinetic of the OH radical in mixtures of atmospheric gases with hydrocarbons studied by time resolved LIF in photo-triggered discharges

L. Magne, S. Pasquiers, C. Postel
dans *Gas Discharges : Fundamentals and Applications*, Ch. 5, p.114-147. Ed. J. de Amorim Filho (2007). ISBN 978-81-7895-287-1.

Effect of propene, n-decane, and toluene plasma kinetics on NO conversion in homogeneous oxygen-rich dry mixtures at ambient temperature

G. Lombardi, N. Blin-Simiand, F. Jorand, L. Magne, S. Pasquiers, C. Postel, J.-R. Vacher
Plasma Chemistry and Plasma Processes, 27 (2007) 414-445.

Production and reactivity of the hydroxyl radical in homogeneous high-pressure plasmas of atmospheric gases containing trace of light olefins

L. Magne, S. Pasquiers, N. Blin-Simiand, C. Postel
Journal of Physics D : Applied Physics, 40 (2007) 3112-3127.

Influence of temperature on the removal of toluene by dielectric barrier discharge

N. Blin-Simiand, F. Jorand, Z. Belhadj-Miled, S. Pasquiers, C. Postel
International Journal of Plasma, Environmental Science and Technology, 1 (2007) 64-70.

Electron impact ionization cross-sections of toluene

J.R. Vacher, F. Jorand, N. Blin-Simiand, S. Pasquiers
Chemical Physics Letters, 434 (2007) 188-193.

Association des plasmas non-thermiques à la catalyse : applications et verrous technologiques

S. Pasquiers, J-M. Tatibouët

dans *Plasmas Froids : Astrophysique, Aérospatial, Environnement, Biologie, Nanomatériaux*, ch.9, p.181-214. Publications de l'Université de Saint-Etienne (12/2006). ISBN : 2-86272-425-4.

Partial ionisation cross-sections of 2-propanol and ethanal

J-R. Vacher, N. Blin-Simiand, F. Jorand, S. Pasquiers

Chemical Physics, 323 (2006) 587-594.

Influence of water vapour on acetaldehyde removal efficiency by DBD

A. Chiper, N. Blin-Simiand, F. Jorand, S. Pasquiers, G. Popa, C. Postel

Journal of Optoelectronics and Advanced Materials, 8 (2006) 208-211.

LIF spectroscopy applied to the study of non-thermal plasmas for atmospheric pollutant abatement

L. Magne, S. Pasquiers

C. R. Physique, 6 (2005) 908-917.

Production of hydroxyl radicals and removal of acetaldehyde in a photo-triggered discharge in N₂/O₂/CH₃CHO mixtures

L. Magne, S. Pasquiers, V. Edon, S. Jorand, C. Postel, J. Amorim

Journal of Physics D : Applied Physics, 38 (2005) 3446-3450.

Removal of 2-heptanone by dielectric barrier discharges - Effect of a catalyst support

N. Blin-Simiand, P. Tardiveau, A. Risacher, F. Jorand, S. Pasquiers

Plasma Processes and Polymers, 2 (2005) 256-262.

Optical and electrical characterization of pulsed dielectric barrier discharges in heterogeneous structure

P. Tardiveau, C. Boyer, F. Jorand, C. Postel, S. Pasquiers

IEEE Transactions on Plasma Science, 33 (2005) 314-315.

Phototriggered XeCl lasers : from the first prototype to the industrial device

B. Lacour, S. Pasquiers, V. Puech, D. Blin, I. Tassy, P. Delaporte

Proceedings SPIE, 5448 (2005) 366-378.

Electron impact ionisation cross-sections of 2-heptanone

J-R. Vacher, N. Blin-Simiand, F. Jorand, S. Pasquiers

International Journal of Mass Spectrometry, 240 (2005) 161-168.

Removal of pollutants by plasma catalytic processes

S. Pasquiers

European Physical Journal : Applied Physics, 28 (2004) 319-324.

Study of hydrocarbons conversion in air using an homogeneous pre-ionised discharge

S. Pasquiers, C. Postel, L. Magne, V. Puech, G. Lombardi

Journal of Advanced Oxidation Technologies, 7 (2004) 108-115.

Oxidation of 2-heptanone in air by a DBD-type plasma generated within a honeycomb monolith supported Pt-based catalyst

C. Ayrault, J. Barrault, N. Blin-Simiand, F. Jorand, S. Pasquiers, A. Rousseau, J-M. Tatibouët

Catalysis Today, 89 (2004) 75-81.

Photo-triggered discharges for high power lasers and pollutant removal

S. Pasquiers, B. Lacour, V. Puech

Analele Stiintifice ale Univ. " Al. I. Cuza " : Fizica Plasmei si Spectroscopie, éd. Univ. Iasi (Roumanie), tome L (2004) 33-42.

High-pressure phototriggered discharges : physics and applications

B.Lacour, V.Puech, S.Pasquiers

Recent Research and Development in Applied Physics, 6 (2003) 149-191.

Use of a cylindrical dielectric barrier discharge reactor for hydrocarbon conversion

K. Bouamra, N. Blin-Simiand, F. Jorand, S. Pasquiers, C. Postel

Analele Stiintifice ale Univ. "Al. I. Cuza " : Fizica Plasmei si Spectroscopie, éd. Univ. Iasi (Roumanie), tome XLIX (2003) 107-112.

Electron impact ionisation and partial ionisation cross-sections of iso-octane

K.Bouamra, J-R.Vacher, F.Jorand, N.Simiand, S.Pasquiers

Chemical Physics Letters, 373 (2003) 237-244.

Two-step ionization in non-equilibrium SF₆ discharges at high current density

Y.Bychkov, S.Gortchakov, B.Lacour, S.Pasquiers, V.Puech, A.Yastremski

Journal of Physics D : Applied Physics, 36 (2003) 380-388.

Atmospheric pollutant removal by non-thermal plasmas : basic data needs for understanding and optimization of the process

S. Pasquiers, M. Cormier, O. Motret

AIP Conference Proceedings, 636 (2002) 111-121.

Dynamics and breakdown delay times in neon-ethene and neon-propene photo-triggered discharges

F. Fresnet, S.Pasquiers, C.Postel, V.Puech

Journal of Physics D : Applied Physics, 35 (2002) 882-890.

Influence of water on NO removal by pulsed discharge in N₂/H₂O/NO mixtures

F.Fresnet, G.Baravian, L. Magne, S.Pasquiers, C.Postel, V.Puech, A.Rousseau

Plasma Sources Science and Technology, 11 (2002) 152-160.

Investigations of single hot spot discharge in SF₆ gas and in the mixture SF₆/C₂H₆

Y.Bychkov, S.Gortchakov, B.Lacour, S.Pasquiers, C.Postel, V.Puech, A.Yastremski

Proceedings SPIE, 4747 (2002) 261-270.

Importance of pre-ionisation for the non-chain discharge pumped HF laser

B.Lacour, S.Pasquiers, C.Postel, V.Puech

Applied Physics B : Lasers and Optics, 72 (2001) 289-299.

Comparison of performance of chain and non-chain HF/DF phototriggered lasers

B.Lacour, S.Pasquiers, C.Postel, V.Puech

Proceedings SPIE, 4184 (2001) 158-161.

Influence of the X-rays preionization on the performance of a HF phototriggered laser

S.Pasquiers, C.Postel, V.Puech

Proceedings SPIE, 4184 (2001) 627-633.

Kinetic of the NO removal by nonthermal plasma in N₂/NO/C₂H₄ mixtures

F.Fresnet, G.Baravian, L. Magne, S.Pasquiers, C.Postel, V.Puech, A.Rousseau

Applied Physics Letters, 77 (2000) 4118-4120.

Time-resolved laser-induced fluorescence study of NO removal plasma technology in N₂/NO mixtures

F.Fresnet, G.Baravian, S.Pasquiers, C.Postel, V.Puech, A.Rousseau, M.Rozoy

Journal of Physics D : Applied Physics, 33 (2000) 1315-1322.

Time resolved imaging study of phototriggered discharges in SF₆ and Ne/SF₆ mixtures

M.Makarov, L.Ménager, S.Pasquiers, C.Postel, V.Puech

IEEE Transactions on Plasma Science, 27 (1999) 126-127.

Dynamics and correlated performance of a photo-triggered discharge-pumped HF laser using SF₆ with hydrogen or ethane

L.Richeboeuf, S.Pasquiers, F.Doussiet, M.Legentil, C.Postel, V. Puech
Applied Physics B : Lasers and Optics, 68 (1999) 45-53.

Conditions for phototriggered mode achievement in large aperture discharge pumped non chain HF/DF laser

S.Pasquiers, C.Postel, V.Puech, B.Lacour
Proceedings SPIE, 3574 (1998) 594-600.

The influence of H₂ and C₂H₆ molecules on discharge equilibrium and F-atom production in a phototriggered HF laser using SF₆

L.Richeboeuf, S.Pasquiers, M.Legentil, V. Puech
Journal of Physics D : Applied Physics, 31 (1998) 373-389.

Correlations between laser performance and discharge dynamic in a photo-triggered HF laser

S.Pasquiers, L.Richeboeuf, F.Doussiet, M.Legentil, C.Postel, V.Puech
Proceedings SPIE, 3092 (1997) 506-509.

Study of the chemical HF laser pumped by a phototriggered discharge

L.Richeboeuf, F.Doussiet, M.Legentil, S.Pasquiers, C.Postel, V.Puech
Proceedings SPIE, 2788 (1996) 84-94.

Investigations of a photo-triggered HF laser

F.Doussiet, M.Legentil, S.Pasquiers, C.Postel, V.Puech, L.Richeboeuf
Proceedings SPIE, 2702 (1996) 179-190.

Experimental and theoretical investigations of a XeCl phototriggered laser

R.Riva, M.Legentil, S.Pasquiers, V.Puech
Journal of Physics D : Applied Physics, 28 (1995) 856-872.

Spectroscopic diagnostics of the onset of discharge instabilities in a XeCl phototriggered laser

M.Legentil, S.Pasquiers, R.Riva, V.Puech
Applied Physics B : Lasers and Optics, 58 (1994) 515-517.

Modelling studies of XeCl phototriggered lasers

S.Pasquiers, M.Legentil, V.Puech, R.Riva
Proceedings SPIE, 2206 (1994) 254-264.

Etude expérimentale et modélisation des lasers à excimère XeCl photo-déclenchés

S.Pasquiers, M-C.Bordage, M.Legentil, V.Puech, R.Riva, P.Séguir
Annales de Physique, 29 C1 (1994) 213-220.

High density self-broadening of neon 3s-3p atomic spectral lines studied by laser absorption spectroscopy

R. Riva, M. Legentil, S. Pasquiers, V. Puech
Journal of Physics B : At. Mol. Opt. Phys. , 26 (1993) 4065-4077.

Ionization attachment balance in Ne-HCl pulsed discharges

R. Riva, M. Legentil, S. Pasquiers, V. Puech
Journal of Physics D : Applied Physics, 26 (1993) 1061-1066.

Efficient pulsed microwave excitation of a high pressure excimer discharge

V.Rousseau, S.Pasquiers, C.Boisse-Laporte, G.Callède, P.Leprince, J.Marec, V.Puech
Journal of Applied Physics, 71 (1992) 5712-5714.

Breakdown delay time in phototriggered discharges

M.Legentil, S.Pasquiers, V.Puech, R.Riva
Journal of Applied Physics, 72 (1992) 879-887. [Erratum](#) : *J. Appl. Phys.* 75 (1994) 4768.

Self-consistent modeling of surface wave produced discharges at low pressures

A.B.Sa', C.M.Ferreira, S.Pasquiers, C.Boisse-Laporte, P.Leprince, J.Marec
Journal of Applied Physics, 70 (1991) 4147-4158.

Theoretical and experimental studies of phototriggered discharges in argon and neon

H.Brunet, B.Lacour, J.Rocca-Serra, M.Legentil, S.Mizzi, S.Pasquiers, V.Puech
Journal of Applied Physics, 68 (1990) 4474-4480.

Experimental study of a photoswitched discharge for excimer laser

B.Lacour, M.Legentil, S.Mizzi, S.Pasquiers, V.Puech
Proceedings SPIE, 1278 (1990) 2-9.

Plasma waves in a bounded anisotropic plasma : influence of the electron density inhomogeneity

S.Pasquiers
Journal of Applied Physics, 67 (1990) 7246-7253.

Characterization of a low pressure oxygen discharge created by surface wave

A.Granier, S.Pasquiers, C.Boisse-Laporte, R.Darchicourt, P.Leprince, J.Marec
Journal of Physics D : Applied Physics, 22 (1989) 1487-1496.

Action of a static magnetic field on an argon discharge produced by a traveling wave

S.Pasquiers, C.Boisse-Laporte, A.Granier, E.Bloyet, P.Leprince, J.Marec
Journal of Applied Physics, 65 (1989) 1465-1478.

Low pressure argon discharge sustained by a wave with an external applied magnetic field

S.Pasquiers, A.Granier, P.Leprince, J.Marec
Europhysics Letters, 6 (1988) 413-418.

Influence of the radial electron density profile on the determination of the characteristics of surface wave produced discharges

R.Darchicourt, S.Pasquiers, C.Boisse-Laporte, P.Leprince, J.Marec
Journal of Physics D : Applied Physics, 21 (1988) 293-300.