

## PUBLICATIONS

### 1 JOURNAUX A COMITE DE LECTURE

- 1 *Anomalous atomic hydrogen shock wave pattern in a supersonic plasma jet.*  
S. Mazouffre, M.G.H. Boogaarts, J.A.M van der Mullen, D.C. Schram,  
Phys. Rev. Lett. **84**, 2622 (2000).
- 2 *A time-resolved experimental and computational study of two-photon LIF in a hydrogen plasma.*  
H.W.P. van der Heijden, M.G.H. Boogaarts, S. Mazouffre, J.A.M van der Mullen, D.C. Schram,  
Phys. Rev. E **61**, 4402 (2000).
- 3 *Density and temperature of N atoms in the afterglow of a microwave discharge measured by a two photon laser induced fluorescence technique.*  
S. Mazouffre, C. Foissac, P. Supiot, P. Vankan, R. Engeln, D.C. Schram, N. Sadeghi,  
Plasma Sources Sci. Technol. **10**, 168 (2001).
- 4 *Transport of ground-state hydrogen atoms in a plasma expansion.*  
S. Mazouffre, M.G.H. Boogaarts, I.S.J. Bakker, P. Vankan, R. Engeln, D.C. Schram,  
Phys. Rev. E **64**, 016411 (2001).
- 5 *Influence of surface chemistry on the transport of H atoms in a supersonic hydrogen plasma jet.*  
S. Mazouffre, P. Vankan, R. Engeln, D.C. Schram,  
Phys. Plasmas **8**, 3824 (2001).
- 6 *Behavior of the H atom velocity distribution function within the shock wave of a hydrogen plasma jet.*  
S. Mazouffre, P. Vankan, R. Engeln, D.C. Schram,  
Phys. Rev. E **64**, 066405 (2001).
- 7 *Flow dynamics and invasion by background gas of a supersonically expanding thermal plasma.*  
R. Engeln, S. Mazouffre, P. Vankan, D.C. Schram, N. Sadeghi,  
Plasma Sources Sci. Technol. **10**, 595 (2001).
- 8 *Quantitative two-photon LIF measurements of atomic hydrogen densities, temperatures, and velocities in an expanding thermal plasma.*  
M.G.H. Boogaarts, S. Mazouffre, G.J. Brinkman, H.W.P. van der Heijden, P. Vankan, J.A.M.  
van der Mullen, D.C. Schram,  
Rev. Sci. Instrum. **73**, 73 (2002).
- 9 *Wall-association processes in expanding thermal hydrogen plasmas.*  
S. Mazouffre, P. Vankan, W.M.M. Kessels, R. Engeln, M.C.M. van de Sanden, D.C. Schram,  
IEEE Trans. Plasma Sci. **30**, 146 (2002).
- 10 *Plasma expansion: fundamentals and applications.*  
R. Engeln, S. Mazouffre, P. Vankan, I. Bakker, D.C. Schram,  
Plasma Sources Sci. Technol. **11**, A100 (2002).

- 11** *Absolute density measurements of the plasma activated catalytic production of ammonia.*  
R. Engeln, P. Vankan, T. Rutten, S. Mazouffre, D.C. Schram,  
Appl. Phys. Lett. **81**, 418 (2002).
- 12** *Two-photon laser induced fluorescence spectroscopy performed on free nitrogen plasma jets.*  
S. Mazouffre, I. Bakker, R. Engeln, P. Vankan, D.C. Schram,  
Plasma Sources Sci. Technol. **11**, 439 (2002).
- 13** *Modeling of the radiative emission of a plasma surrounding a space probe entering Mars atmosphere.*  
M. Lino da Silva, V. Iago, E. Bedjanian, A. Lebéhot, S. Mazouffre, M. Dudeck, Z. Szymanski,  
P. Peradzynski, A. Chikhaoui, P. Boubert,  
High Temp. Material Proc. **7**, 115 (2003).
- 14** *A vacuum UV laser induced fluorescence experiment for detection of rotationally and vibrationally excited H<sub>2</sub>.*  
P. Vankan, S.B.S. Heil, S. Mazouffre, R. Engeln, D.C. Schram,  
Rev. Sci. Instrum. **75**, 996 (2004).
- 15** *Examination of the regular reflexion phenomenon in a rarefied supersonic plasma flow.*  
S. Mazouffre, E. Pawelec, V. Caubet-Hilloutou, J.-C. Lengrand,  
Phys. Plasmas **12**, 012323 (2005).
- 16** *CCD images of Hall effect thruster plume dynamics after ultra-fast current ignition.*  
V. Vial, S. Mazouffre, M. Prioul, D. Pagnon, A. Bouchoule,  
IEEE Trans. Plasma. Sci. **33**, 524 (2005).
- 17** *Inflow and shock formation in supersonic rarefied plasma expansions.*  
P. Vankan, S. Mazouffre, D.C. Schram, R. Engeln,  
Phys. Plasma **12**, 102303 (2005).
- 18** *Spectral analysis of Hall effect thruster plasma oscillations based on the Empirical Mode Decomposition.*  
J. Kurzyna, S. Mazouffre, A. Lazurenko, L. Albarède, G. Bonhomme, K. Makowski, M. Dudeck,  
Z. Peradzynski,  
Phys. Plasmas **12**, 123506 (2005).
- 19** *Low-frequency electron dynamics in the near field of a Hall effect thruster.*  
L. Albarède, S. Mazouffre, A. Bouchoule, M. Dudeck  
Phys. Plasmas **13**, 063505 (2006).
- 20** *A Fabry-Pérot spectroscopy study on ion flow features in a Hall effect thruster.*  
D. Gawron, S. Mazouffre, C. Boniface,  
Plasma Sources Sci. Technol. **15**, 757 (2006).
- 21** *Anomalous cross field electron transport in a Hall effect thruster.*  
C. Boniface, L. Garrigues, G.J.M. Hagelaar, J.P. Boeuf, D. Gawron, S. Mazouffre  
Appl. Phys. Lett. **89**, 161503 (2006).

- 22** *A calibrated infrared imaging study on the steady state thermal behavior of Hall effect thrusters.*  
S. Mazouffre, P. Echegut, M. Dudeck,  
Plasma Sources Sci. Technol. **16**, 13 (2007).
- 23** *Examination of plasma-wall interactions in Hall effect thrusters by means of calibrated thermal imaging.*  
S. Mazouffre, J. Pérez Luna, K. Dannenmayer,  
J. Appl. Phys. **102**, 023304 (2007).
- 24** *Fabry-Pérot lineshape analysis in an optically thick expanding plasma.*  
E. Pawelec, V. Caubet-Hilloutou, S. Mazouffre,  
Plasma Sources Sci. Technol. **16**, 635 (2007).
- 25** *Influence of magnetic field and discharge voltage on the acceleration layer features in a Hall effect thruster.*  
D. Gawron, S. Mazouffre, N. Sadeghi, A. Héron,  
Plasma Sources Sci. Technol. **17**, 025001 (2008).
- 26** *Dispersion relation of high-frequency plasma oscillations in Hall thrusters.*  
A. Lazurenko, G. Coduti, S. Mazouffre, G. Bonhomme,  
Phys. Plasmas **15**, 034502 (2008).
- 27** *Xe<sup>+</sup> ion transport in the crossed-field discharge of a 5 kW-class Hall effect thruster.*  
S. Mazouffre, D. Gawron, V. Kulaev, N. Sadeghi,  
IEEE Trans. Plasma Sciences **36**, 1967 (2008).
- 28** *Physics, simulation, and diagnostics of Hall effect thrusters.*  
J.C. Adam, J.P. Boeuf, N. Dubuit, M. Dudeck, L. Garrigues, D. Gresillon, A. Héron, G. Hagelaar,  
V. Kulaev, N. Lemoine, S. Mazouffre, J. Perez Luna, V. Pisarev, S. Tsikata  
Plasma Phys. Control. Fusion **50**, 124041 (2008).
- 29** *Sizing of Hall effect thrusters with input power and thrust level: An empirical approach.*  
K. Dannenmayer, S. Mazouffre,  
J. Tech. Phys. **49**, 231 (2008).  
disponible en ligne : Paper [arXiv:0810.3994v2](https://arxiv.org/abs/0810.3994v2)
- 30** *Current and plasma oscillation characterization in a PPS®X000 Hall effect thruster.*  
J. Kurzyna, K. Makowski, Z. Peradzyński, A. Lazurenko, S. Mazouffre, G. Coduti, M. Dudeck,  
J. Tech. Phys. **49**, 267 (2008).
- 31** *Metastable oxygen atom velocity and temperature in supersonic CO<sub>2</sub> plasma expansions.*  
S. Mazouffre, E. Pawelec,  
J. Phys. D: Appl. Physics **42**, 015203 (2009).
- 32** *A time-resolved LIF study on the ion velocity distribution function in a Hall thruster after a fast current disruption.*  
S. Mazouffre, D. Gawron, N. Sadeghi,  
Phys. Plasmas **16**, 043504 (2009).  
disponible en ligne : Paper [arXiv:0902.1432v1](https://arxiv.org/abs/0902.1432v1)

- 33** *Ion diagnostics of a discharge in crossed electric and magnetic fields for electric propulsion.*  
S. Mazouffre, V. Kulaev, J. Pérez-Luna  
Plasma Sources Sci. Technol. **18**, 034022 (2009).
- 34** *Empirical electron cross-field mobility in a Hall effect thruster.*  
L. Garrigues, J. Pérez-Luna, J. Lo, G.J.M. Hagelaar, J.P. Boeuf, S. Mazouffre,  
Appl. Phys. Lett **95**, 141501 (2009).
- 35** *Unexpected transverse velocity component of Xe<sup>+</sup> ion near the exit plane of a Hall thruster.*  
G. Bourgeois, S. Mazouffre, N. Sadeghi  
Phys. Plasmas **17**, 113502 (2010).
- 36** *Spatio-temporal characteristics of ion velocity in a Hall thruster discharge.*  
S. Mazouffre, G. Bourgeois  
Plasma Sources Sci. Technol. **19**, 065018 (2010).
- 37** *Elementary scaling relations for Hall effect thrusters.*  
K. Dannenmayer, S. Mazouffre  
J. Propulsion Power **27**, 236 (2011).
- 38** *A comprehensive study on the atom flow in the cross-field discharge of a Hall thruster.*  
S. Mazouffre, G. Bourgeois, L. Garrigues, E. Pawelec  
J. Phys. D: Appl. Physics **44**, 105203 (2011).
- 39** *Impact of discharge voltage on wall-losses in a Hall thruster.*  
S. Mazouffre, K. Dannenmayer, C. Blank  
Phys. Plasmas **18**, 064501 (2011).
- 40** *Hyperfine structure of some near-infrared Xe I and Xe II lines.*  
E. Pawelec, S. Mazouffre, N. Sadeghi  
Spectrochimica Acta B **66**, 470 (2011).
- 41** *Strip-like structure in a low-pressure magnetized RF discharge.*  
D. Gerst, M. Cirisan, S. Mazouffre  
IEEE Trans. Plasma Sci. **39**, 2570 (2011).
- 42** *Measurement of plasma parameters in the far-field plume of a Hall effect thruster.*  
K. Dannenmayer, P. Kudrna, M. Tichý, S. Mazouffre  
Plasma Sources Sci. Technol. **21** 065012 (2011).
- 43** *PEGASES – A new promising electric propulsion concept.*  
A. Aanesland, S. Mazouffre, P. Chabert  
EuroPhysics News **42**, 28 (2011).
- 44** *Examination of Argon metastable atom velocity distribution function close to a conducting wall.*  
N. Claire, S. Mazouffre, C. Rebond, F. Doveil  
Phys. Plasmas **19**, 032108 (2012).

- 45** *Effect of deposited RF power on Stationary Plasma Thruster characteristics.*  
A.I. Bugrova, G.E. Bugrov, V.K. Harchevnikov, M.I. Shaposhnikov, S. Mazouffre  
Tech. Phys. Lett. **38**, 344 (2012).
- 46** *Ionization and acceleration processes in a small, variable channel width, permanent magnet Hall thruster.*  
S. Mazouffre, G. Bourgeois, K. Dannenmayer, A. Lejeune  
J. Phys. D: Appl. Physics **45**, 185203 (2012).
- 47** *Computed versus measured ion velocity distribution functions in a Hall effect thruster.*  
L. Garrigues, S. Mazouffre, G. Bourgeois  
J. Appl. Phys. **111**, 113301 (2012).
- 48** *Kr II and Xe II axial velocity distribution functions in a cross-field ion source.*  
A. Lejeune, G. Bourgeois, S. Mazouffre  
Phys. Plasmas **19** 073501 (2012).
- 49** *Time-resolved measurement of plasma parameters in the far-field plume of a low-power Hall effect thruster.*  
K. Dannenmayer, P. Kudrna, M. Tichý, S. Mazouffre  
Plasma Sources Sci. Technol. **21** 055020 (2012).
- 50** *Compact high-speed reciprocating probe system for measurements in a Hall effect thruster discharge and plume.*  
K. Dannenmayer, S. Mazouffre.  
Rev. Sci. Instrum. **83** 123503 (2012).
- 51** *Laser-induced fluorescence diagnostics of the cross-field discharge of Hall thrusters.*  
S. Mazouffre  
Plasma Sources Sci. Technol. **22**, 013001 (2013) [Topical Review].
- 52** *Plasma drift in a low-pressure magnetized radio frequency discharge.*  
D. Gerst, S. Cuynet, M. Cirisan, S. Mazouffre  
Plasma Sources Sci. Technol. **22**, 015024 (2013).
- 53** *Time-resolved measurements of plasma properties using electrostatic probes in the cross-field discharge of a Hall effect thruster.*  
K. Dannenmayer, P. Kudrna, M. Tichý, S. Mazouffre  
Contrib. Plasma Phys. **53**, 63 (2013).
- 54** *Electron flow properties in the far-field plume of a Hall thruster.*  
K. Dannenmayer, S. Mazouffre  
Plasma Sources Sci. Technol. **22**, 035004 (2013).
- 55** *Photon counting technique applied to time-resolved laser-induced fluorescence measurements on a stabilized discharge.*  
J. Vaudolon, L. Balika, S. Mazouffre  
Rev. Sci. Instrum. **84**, 073512 (2013).

- 56** *Time evolution of the electric field in a Hall thruster*  
J. Vaudolon, B. Khiar, S. Mazouffre  
Plasma Sources Sci. Technol. Fast Track Com. **23**, 022002 (2014).
- 57** *The time-varying electron energy distribution function in the plume of a Hall thruster*  
K. Dannenmayer, S. Mazouffre, P. Kudrna, M. Tichý  
Plasma Sources Sci. Technol. **23** 065001 (2014).
- 58** *Visual evidence of magnetic shielding with the PPS-Flex Hall thruster*  
S. Mazouffre, J. Vaudolon, G. Largeau, C. Hénaux, A. Rossi, D. Harribey  
IEEE Trans. Plasma Sci. **42**, 2668 (2014).
- 59** *Indirect determination of the electric field in plasma discharges using LIF spectroscopy*  
J. Vaudolon, S. Mazouffre  
Phys. Plasmas **21**, 093505 (2014).
- 60** *Development and experimental characterization of a wall-less Hall thruster*  
S. Mazouffre, S. Tsikata, J. Vaudolon,  
J. Appl. Phys. **116**, 243302 (2014).
- 61** *Development of a high-frequency emissive probe system for plasma potential measurements in a Hall thruster*  
S. Mazouffre, A. Pétin, P. Kudrna, M. Tichý  
IEEE Trans. Plasma Sci. **43**, 29-34 (2015).
- 62** *Time-Resolved Ion Velocity Distribution in a Cylindrical Hall Thruster: Heterodyne-based experiment and modeling*  
A. Diallo, S. Keller, Y. Shi, Y. Raiteses, S. Mazouffre  
Rev. Sci. Instrum. **86**, 033506 (2015).
- 63** *Development and testing of a Hall thruster with a flexible magnetic field configuration*  
S. Mazouffre, G. Bourgeois, J. Vaudolon, L. Garrigues, C. Hénaux, D. Harribey, R. Vilamot, A. Rossi, S. Zurbach, D. Le Méhauté  
J. Propulsion Power **31**, 1167 (2015).
- 64** *Observation of high-frequency ion instabilities in a cross-field plasma*  
J. Vaudolon, S. Mazouffre,  
Plasma Sources Sci. Technol. Fast Track **24**, 032003 (2015).
- 65** *Optimization of a wall-less Hall thruster*  
J. Vaudolon, S. Mazouffre, C. Hénaux, D. Harribey, A. Rossi  
Appl. Phys. Lett. **107** 174103 (2015).
- 66**  *$E \times B$  probe measurements in molecular and electronegative plasmas*  
D. Renaud, D. Gerst, S. Mazouffre, A. Aanesland  
Rev. Sci. Instrum. **86**, 123507 (2015).

- 67** *Perturbations induced by electrostatic probe in the discharge of Hall thrusters*  
L. Grimaud, A. Pétin, J. Vaudolon, S. Mazouffre  
Rev. Sci. Instrum. **87**, 043506 (2016).
- 68** *Electric propulsion for satellites and spacecraft: established technologies and novel approaches*  
S. Mazouffre  
Plasma Sources Sci. Technol. [Topical Review] **25**, 033002 (2016).
- 69** *An advanced electric propulsion diagnostic (AEPD) platform for in-situ characterization of electric propulsion thrusters and ion beam sources*  
C. Bundesmann, C. Eichhorn, F. Scholze, D. Spemann, H. Neumann, D. Pagano, S. Scaranzin, F. Scortecci, H. J. Leiter, S. Gauter, R. Wiese, H. Kersten, K. Holste, P. Köhler, P. J. Klar, S. Mazouffre, R. Blott, A. Bulit, K. Dannemayer  
Eur. Phys. J. D **70**, 212 (2016).
- 70** *Nonlinear ion dynamics in hall thruster plasma source by ion transit-time instability*  
Y. Lim, W. Choe, S. Mazouffre, J. S. Park, H. Kim, J. Seon, L. Garrigues  
Plasma Sources Sci. Technol. **26**, 03LT01 (2017).
- 71** *Ion behavior in low-power magnetically shielded and unshielded Hall thrusters*  
L. Grimaud, S. Mazouffre  
Plasma Sources Sci. Technol. **26**, 055020 (2017).
- 72** *The 2017 Plasma Roadmap: Low temperature plasma science and technology  
Aerospace applications: propulsion and flow control*  
S. Mazouffre, E. Moreau  
J. Phys. D: Appl. Phys. **50**, 323001 pp. 28-29 (2017).
- 73** *Conducting wall Hall thrusters in magnetic shielding and standard configurations*  
L. Grimaud, S. Mazouffre  
J. Appl. Phys. **122**, 033305 (2017).
- 74** *Detection of ground state rovibrationally excited molecular hydrogen via synchrotron radiation*  
S. Béchu, S. Aleiferis, J. Bentounes, L. Gavilan, V. Shakatov, A. Bès, P. Svarnas, S. Mazouffre, N. de Oliveira, R. Engeln and J. L. Lemaire  
Appl. Phys. Lett. **111**, 074103 (2017).
- 75** *Examination of a 5 A-class cathode with a LaB<sub>6</sub> flat disk emitter in the 2 A–20 A current range*  
R. Jousot, L. Grimaud, S. Mazouffre  
Vacuum **146**, pp. 52-62 (2017).
- 76** *A new ion-ion plasma thruster with an annular geometry*  
S. Mazouffre, D. Renaud  
Eur. Phys. J. D **71**, 298 (2017).
- 77** *Non-Maxwellian electron energy probability functions in the plume of a SPT-100 Hall thruster*  
G. Giono, J. T. Gudmundsson, N. Ivchenko, S. Mazouffre, K. Dannemayer, D. Loubère, L. Popelier, M. Merino, G. Olentšenko  
Plasma Sources Sci. Technol. **27**, 015006 (2018).

- 78** *Space micropropulsion systems for Cubesats and small satellites: from proximate targets to furthestmost frontiers*  
I. Levchenko, K. Bazaka, Y. Ding, Y. Raitses, S. Mazouffre, T. Henning, P. J. Klar, S. Shinohara, J. Schein, L. Garrigues, M. Kim, D. Lev, F. Taccogna, R. W. Boswell, C. Charles, H. Koizumi, S. Yan, C. Scharlemann, M. Keidar, S. Xu  
Appl. Phys. Rev. **5**, 011104 (2018).
- 79** *Characteristics and performances of a 100W Hall thruster for microspacecraft*  
S. Mazouffre, L. Grimaud  
IEEE Trans. Plasma Sci. **46**, pp. 330-337 (2018).
- 80** *Anode position influence on discharge modes of a LaB<sub>6</sub> cathode in diode configuration*  
G-C. Potrivitu, R. Jousot S. Mazouffre  
Vacuum **151**, pp. 122-132 (2018).
- 81** *A compact new incoherent Thomson scattering diagnostic for low-temperature plasma studies*  
B. Vincent, S. Tsikata, S. Mazouffre, T. Minea, J. Fils  
Plasma Sources Sci. Technol. **27**, 055002 (2018).
- 82** *Electron energy distribution function in a low-power Hall thruster discharge and near-field plume*  
M. Tichý, A. Pétin, P. Kudrna, M. Horký, S. Mazouffre  
Phys. Plasmas **25**, 061205 (2018).
- 83** *Performance comparison between standard and magnetically shielded 200 W Hall thrusters with BN-SiO<sub>2</sub> and graphite channel walls*  
L. Grimaud, S. Mazouffre  
Vacuum **155**, 514-523 (2018).
- 84** *ID-HALL, a new double stage Hall thruster design. I. Principle and hybrid model of IDHALL*  
L. Dubois, F. Gaboriau, L. Liard, D. Harribey, C. Henaux, L. Garrigues, G.J.H. Hagelaar, S. Mazouffre, C. Boniface, J.P. Boeuf  
Phys. Plasmas **25**, 093503 (2018).
- 85** *Prospects and physical mechanisms for photonic space propulsion*  
I. Levchenko, K. Bazaka, S. Mazouffre, S. Xu  
Nature Photonics **12**, 649–657 (2018).
- 86** *Mars colonization: Beyond getting there*  
I. Levchenko, S. Xu, S. Mazouffre, M. Keidar, K. Bazaka  
Global Challenges **2**, 1800062 (2018).
- 87** *Rotating spoke instabilities in a wall-less Hall thruster: Simulations*  
K. Matyash, R. Schneider, S. Mazouffre, S. Tsikata, L. Grimaud  
Plasma Sources Sci. Technol. **28**, 044002 (2019).



- 88** *Operation of a low-power Hall thruster: Comparison between magnetically unshielded and shielded configuration*  
L. Garrigues, S. Santhosh, L. Grimaud, S. Mazouffre  
Plasma Sources Sci. Technol. **28**, 034003 (2019).
- 89** *Space Exploration – Mars Colonization: Beyond Getting There*  
I. Levchenko, S. Xu, S. Mazouffre, M. Keidar, K. Bazaka  
Global Challenges 3, Cover picture, 1970011 (2019).
- 90** *Rotating spoke instabilities in a wall-less Hall thruster: Experiments*  
S. Mazouffre, L. Grimaud, S. Tsikata, K. Matyash, R. Schneider  
Plasma Sources Sci. Technol. **28**, 054002 (2019).
- 91** *Anode geometry influence on LaB<sub>6</sub> cathode discharge characteristics*  
G-C. Potrivitu, S. Mazouffre, L. Grimaud, R. Jousset  
Phys. Plasmas **26**, 113506 (2019).
- 92** *Perspectives, frontiers and new horizons for plasma-based space electric propulsion*  
I. Levchenko, S. Xu, S. Mazouffre, D. Lev, D. Pedrini, D. Goebel, L. Garrigues, F. Taccogna and K. Bazaka  
Phys. Plasmas **27**, 020601 (2020).
- 93** *Incoherent Thomson Scattering measurements of electron properties in a conventional and magnetically-shielded Hall thruster*  
B. Vincent, S. Tsikata, S. Mazouffre  
Plasma Sources Sci. Technol. **29** 035015 (2020).
- 94** *Collisionless electron cooling in a plasma thruster plume: experimental validation of a kinetic model*  
M. Merino, P. Fajardo, G. Giono, J. T. Gudmundsson, N. Ivchenko, S. Mazouffre, D. Loubère, K. Dannenmayer  
Plasma Sources Sci. Technol. **29** 035029 (2020).
- 95** *Far-field plume characterization of a 100 W-class Hall thruster*  
T. Hallouin, S. Mazouffre  
AeroSpace **7** 58 (2020).
- 96** *Electron properties of an emissive cathode: analysis with incoherent Thomson scattering, fluid simulations and Langmuir probe measurements*  
B. Vincent, S. Tsikata, G.-C. Potrivitu, L. Garrigues, G. Sary, S. Mazouffre  
J. Phys. D: Appl. Phys. **53** 415202 (2020).
- 97** *Direct experimental comparison of krypton and xenon discharge properties in the magnetic nozzle of a helicon plasma source*  
Alfio E. Vinci, S. Mazouffre  
Phys. Plasmas **28**, 033504 (2021).

- 98** *Optimization of a Faraday cup collimator for electric propulsion device beam study: Case of a Hall thruster*  
V. Hugonnaud, S. Mazouffre,  
Appl. Sciences **11**, 2419 (2021).
- 100** *The HIPATIA project's initial development stages: setting the basis to bring the Helicon Plasma Thruster and its associated technologies to intermediate-high TRLs*  
M. Ruiz, V. Gómez, P. Fajardo, J. Navarro, R. Albertoni, G. Dickeli, A. Vinci, S. Mazouffre,  
N. Hildebrand  
To appear in CEAS Space Journal (2021).

**2 CHAPITRES D'OUVRAGES SCIENTIFIQUES**

- 1** *Transport of neutral atomic hydrogen in a supersonic plasma jet.*  
S. Mazouffre, M.G.H. Boogaarts, J.A.M. van der Mullen, D.C. Schram,  
in Heat and Mass transfer under Plasma Conditions,  
edited by P. Fauchais, J. van der Mullen, and J. Heberlein, Annals of the New York Academy of  
Sciences **891**, p. 348 (1999).
- 2** *Transport of atomic radicals in expanding plasmas: a laser spectroscopy study.*  
S. Mazouffre, R. Engeln, M.G.H. Boogaarts, J.A.M. van der Mullen, D.C. Schram,  
in Progress in Plasma Processing of Material,  
edited by P. Fauchais, Begell House, New York, p. 83 (2001).
- 3** *The physics of plasma expansions.*  
D.C. Schram, S. Mazouffre, R. Engeln, M.C.M. van de Sanden,  
in Atomic and Molecular Beams,  
edited by R. Campargue, Springer, New York, p. 209 (2001).
- 4** *Doppler-free spectroscopy measurements of isotope shifts and hyperfine components of near  
infrared xenon lines.*  
S. Mazouffre, E. Pawelec, N. Tran Bich, N. Sadeghi,  
in AIP Conference Proceedings, American Institute of Physics, vol. **812**, p. 457 (2006)  
Edited by M. J. Sadowski, M. Dudeck, H-J. Hartfuss, E. Pawelec.
- 5** *A laser spectroscopic study on Xe<sup>+</sup> ion transport phenomena in the E×B discharge of a Hall  
effect thruster.*  
S. Mazouffre, D. Gawron, V. Kulaev, J. Pérez-Luna, N. Sadeghi,  
in AIP Conference Proceedings, American Institute of Physics, vol. **993**, p. 447 (2007)  
Edited by H-J. Hartfuss, M. Dudeck, J. Musielok, M. J. Sadowski.
- 6** *Spectroscopie de fluorescence induite par diodes laser : Application au diagnostic des plasmas.*  
S. Mazouffre  
Plasmas Froids : Systèmes d'analyse, Modélisation et Rayonnement, Publications MRCT du  
CNRS, p. 67 (2009).
- 7** *Un capteur de flux d'énergie dans les plasmas*  
A.-L. Thomann, N. Semmar, R. Dussart, L. Bedra, J. Mathias, Y. Tessier, S. Mazouffre,  
Plasmas Froids : Systèmes d'analyse, Modélisation et Rayonnement, Publications MRCT du  
CNRS, p. 97 (2009)
- 8** *Elementary scaling laws for the design of low and high power effect thrusters*  
K. Dannenmayer, S. Mazouffre,  
Progress in Propulsion Physics Vol. 2, Eucass book series, EDP Science, p. 601 (2011)  
Edited by L. Deluca, C. Bonnal, O. J. Haidn, S. M. Frolov.
- 9** *Laser-induced fluorescence spectroscopy applied to electric thrusters*  
S. Mazouffre  
Von Karman Institute for Fluid Dynamics, STO-AVT-VKI Lecture series 263, Electric  
propulsion systems, Edited by T. Magin, p. 10-1..26 (2016).

**10** *Propulsion électrique pour les systèmes spatiaux*

S. Mazouffre

Technique de l'Ingénieur, TRP4051 (2018).

**11** Préface de l'ouvrage *La Mécanique des Fluides en Applications : Exercices et Problèmes corrigés*

J. N. Blanchard, édition Ellipses, Ellipses, Mars 2020.

**12** ESA Roadmaps

ROADMAP: Applied Space sciences

Section 6 *Spacecraft Electric Propulsion and reentry plasmas*, pp. 12-15, Déc. 2020

**3 ARTICLE DE VULGARISATION**

- 1** *En route vers Mars...*  
S. Mazouffre,  
Microscop **12** (hors-série), p. 34-35 (octobre 2003).
- 2** *Les interactions de la décharge avec les céramiques.*  
S. Mazouffre, S. Barral,  
Lettre SPI, N° spécial « La propulsion à plasma », p. 26-27 (2004).
- 3** *Des plasmas pour une combustion plus efficace.*  
J-P. Martin, S. Mazouffre,  
Microscop **13** (hors-série), p. 38-39 (octobre 2004).
- 4** *Labo en direct : L'Aérothermique.*  
C. Fougère, J-P. Martin, S. Mazouffre, A-L. Thomann,  
Microscop **46**, p. 6-9 (janvier 2005).
- 5** *Le CNRS étudie des propulseurs à plasma destinés aux satellites.*  
J. M. Scheider, S. Mazouffre,  
La République du Centre, 6 septembre 2005.
- 6** *De la Terre à la Lune... grâce à l'électricité.*  
S. Mazouffre, M. Dudeck  
Microscop **14** (hors-série), p. 18-21 (octobre 2005).
- 7** *Des plasmas pour voyager dans l'espace.*  
S. Mazouffre, M. Dudeck,  
Covalence **59**, p. 4-5 (avril 2006).
- 8** *PIVOINE-2G, la fine fleur de la propulsion.*  
S. Mazouffre,  
Microscop **51**, p. 19 (janvier 2007).
- 9** *Un nouveau défi pour la propulsion spatiale à plasma : la forte puissance.*  
S. Mazouffre,  
Microscop **52**, p. 8-9 (avril 2007).
- 10** *La propulsion électrique pour les missions spatiales.*  
A. Bouchoule, M. Dudeck, S. Mazouffre, O. Duchemin,  
Lettre AAAF N° **6**, p. 11-16 (juin 2007).
- 11** *Au CNRS, Icare défie le soleil en franchissant la porte des étoiles.*  
G. Chantepie,  
La République du Centre p. 4 (12 juillet 2007).

- 12** *La propulsion dans l'espace dopée par les moteurs à plasma du futur.*  
P. Le Hir,  
Le Monde, p. 6 (13 juillet 2007).
- 13** *Les propulseurs à plasma : Une technologie spatiale d'avant-garde.*  
S. Mazouffre,  
Reflets de la Physique, Revue de la Société Française de Physique, n° **14**, p. 15-19 (mai 2009).
- 14** *Les moteurs à plasma pour les satellites de télécommunications.*  
M. Dudeck, S. Mazouffre, S. Zurbach, D. Arrat, S. Barral, J. Kurzyna, K. Makowski,  
Z. Peradzyński, P. Rybka, K. Mosyński, E. Pawelec,  
Annales du centre scientifique de l'Académie Polonaise des sciences à Paris, Vol. 11, p.77-90  
(2009).
- 15** *Homo Spatialis ?*  
I. Gökalp, S. Mazouffre  
Covalence **73**, p. 6 (octobre 2009).
- 16** *ICARE : l'électricité pour s'envoler vers Jupiter.*  
C. Tribout,  
La République du Centre p. 3 (18 novembre 2009).
- 17** *Un état exotique de la matière pour la propulsion spatiale.*  
S. Mazouffre,  
Microscop **61**, p. 10-11 (juillet 2010).
- 18** *Moteur plasma – Objectif Mars... en 39 jours.*  
M. Valin (collaboartion),  
Science & Vie **1115**, p. 98-103 (août 2010).
- 19** *Les plasmas sont partout...*  
T. Gibert, A. Marchaudon, S. Mazouffre  
Microscop **65**, p. 16 -21 (février 2012).
- 20** *Crossing the 1 N barrier in electric propulsion*  
S. Mazouffre, P. Lasgorceix  
International Astronautical Federation Newsletter **3**, p. 14 (septembre 2012).
- 21** *La propulsion ionique pour l'exploration du système solaire*  
S. Mazouffre  
Covalence **85**, p 14 (octobre 2012).
- 22** *La propulsion ionique décolle enfin*  
P. Pajot (collaboration)  
Science & Avenir hors-Série, p 20 (octobre/novembre 2012).

**23** *Ceux qui... veulent fuir la Terre*

M. Grousson (collaboration)

Science & Vie hors-Série « Fin du monde », p 88-92 (décembre 2012).

**24** *Propulser une fusée sans carburant, grâce au plasma virtuel du vide quantique? Les interrogations autour de l'annonce de la NASA.*

A. Frandin (collaboration)

Slate.fr : <http://www.slate.fr/story/90709/propulseur-fusee-nasa> (août 2014).

**25** *Technologies spatiales : vers un nouveau type de propulseur à plasma « sans parois »*

S. Mazouffre

Site web de l'INSIS-CNRS : [www.cnrs.fr/insis/recherche/actualites/2014/propulseur-plasma.htm](http://www.cnrs.fr/insis/recherche/actualites/2014/propulseur-plasma.htm)  
(novembre 2014).

**26** *Des accélérateurs d'ions pour la propulsion spatiale*

S. Mazouffre

Lettre n°5 de la Fédération Française de Sociétés Savantes (déc. 2014).

<http://www.f2s-asso.org/lettre5/Article3/index.html>

**27** *Les plasmas froids réchauffent l'innovation*

M. Koppe (collaboration)

Le Journal du CNRS : <https://lejournal.cnrs.fr/articles/les-plasmas-froids-rechauffent-linnovation>  
(Mars 2016).

**28** *Propulsion ionique. La propulsion du futur ?*

J. P. Martin, S. Mazouffre

L'astronomie **130**, p. 20-25 (Nov. 2016).

**29** *EmDrive. Le moteur spatial qui rend fou*

M. Valin (collaboration)

Science & Vie **1194**, p. 83-87 (Mars 2017).

**30** *Une propulsion électrique pour les satellites*

R. Decourt (collaboration)

Futura Sciences (Juin 2017).

<http://www.futura-sciences.com/sciences/actualites/astronautique-satellites-electriques-solution-avenir-49907/>

**31** *Ce moteur ionique étonnant carbure à l'atmosphère*

R. Decourt (collaboration)

Futura Sciences (Mars 2018).

<https://www.futura-sciences.com/sciences/actualites/propulsion-electrique-ce-moteur-ionique-etonnant-carbure-atmosphere-70447/>

- 32** *BlackSky, un satellite propulsé par de l'eau*  
R. Decourt (collaboration)  
Futura Sciences (Avril 2018).  
<https://www.futura-sciences.com/sciences/actualites/observation-terre-blacksky-satellite-propulse-eau-70867/>
- 33** *ORACLE, un nouveau partenariat public/privé pour la propulsion électrique des petits satellites*  
CNRS, communiqué de presse, 5 Mars 2019  
<http://icare.cnrs.fr/wp-content/uploads/2019/03/convention-ORACLE.pdf>
- 34** *Orléans La Source : naissance d'un tout nouveau laboratoire de recherche spatiale*  
France 3 Centre – Val de Loire, 8 Mars 2019  
Yacha Hajzler  
<https://france3-regions.francetvinfo.fr/centre-val-de-loire/loiret/orleans/orleans-source-naissance-nouveau-laboratoire-recherche-spatiale-1635278.html>
- 35** *Dans les coulisses du CNRS d'Orléans*  
France 3, JT, 25 Mars 2019  
Episode 2 ICARE : Conception d'une nouvelle génération de satellites  
<https://france3-regions.francetvinfo.fr/centre-val-de-loire/loiret/orleans/coulisses-du-cnrs-orleans-1644272.html>
- 36** *Bientôt, l'espace sera rempli de mini-satellites... conçus à Orléans*  
La République du Centre, 31 Mai 2019  
[https://www.larep.fr/orleans-45000/actualites/bientot-l-espace-sera-rempli-de-mini-satellites-concus-a-orleans\\_13571698/?fbclid=IwAR214juRiJA8fP4z--RSuWfV8PZfi8BSyhxMj6cd-vdU\\_9v19sQCwfg7Efc](https://www.larep.fr/orleans-45000/actualites/bientot-l-espace-sera-rempli-de-mini-satellites-concus-a-orleans_13571698/?fbclid=IwAR214juRiJA8fP4z--RSuWfV8PZfi8BSyhxMj6cd-vdU_9v19sQCwfg7Efc)
- 37** *ORACLE, le labo qui vise l'orbite*  
La République du Centre  
5 Juin 2019, p. 12
- 38** *Militarisation de l'espace : « Un satellite, en lui-même, c'est une arme »*  
France 3 Centre – Val de Loire, 26 Juillet 2019  
Yacha Hajzler  
<https://france3-regions.francetvinfo.fr/centre-val-de-loire/loiret/orleans/militarisation-espace-satellite-lui-meme-c-est-arme-1704402.html>
- 39** *Voici pourquoi les satellites seraient cruciaux si une guerre éclatait dans l'espace*  
Business Insider France, 11 Septembre 2019  
Chisato Goya  
<https://www.businessinsider.fr/voici-pourquoi-les-satellites-seraient-cruciaux-si-une-guerre-eclatait-dans-l'espace/>
- 40** *Stéphane Mazouffre met ses rêves en orbite*  
Acteurs de l'Eco, 22, p. 20  
Août – Septembre 2019



**41** *Rendre les nanosatellites plus agiles*

Collaboration avec R. Decourt

Air & Cosmos **2678** p. 18-19 (6 mars 2020)

**42** *Un moteur orientable va booster l'exploration spatiale*

Science & Vie **1233**, p. 17 (Juin 2020).

**43** *Comment booster la propulsion ?*

Collaboration avec Vahé Ter Minassian

Carnets de Science **10** – La revue du CNRS

La Ruée vers l'Espace

**4 ACTES DE CONGRES**

- 1 *LIF monitoring of atomic H and N in expanding plasmas produced by a cascaded arc.*  
G.J. Brinkman, S. Mazouffre, H.F. Döbele, M.G.H. Boogaarts, J.A.M. van der Mullen, D.C. Schram, 2nd Frontiers in Low Temperature Plasma Diagnostics Conference, Bad Honnef, Germany, p. 97 (1997).
- 2 *Laser induced fluorescence monitoring of atomic H and N in expanding plasmas produced by a cascaded arc.*  
M.G.H. Boogaarts, G.J. Brinkman, S. Mazouffre, H.F. Döbele J.A.M. van der Mullen, D.C. Schram, 13th International Symposium on Plasma Chemistry, Beijing, China, p. 529 (1997).
- 3 *Laser induced fluorescence monitoring of atomic hydrogen densities and velocities in an expanding cascaded arc plasma.*  
M.G.H. Boogaarts, G.J. Brinkman, H.W.P. van der Heijden, P. Vankan, S. Mazouffre, J.A.M. van der Mullen, D.C. Schram, H.F. Döbele, 8th International Symposium on Laser-Aided Plasma Diagnostics, Doorwerth, The Netherlands, p. 109 (1997).
- 4 *A 2-photon LIF study on the expansion behaviour of a plasma beam generated from an Ar-H<sub>2</sub> mixture.*  
S. Mazouffre, M.G.H. Boogaarts, I.S.J. Bakker, J.A.M. van der Mullen, D.C. Schram, 3rd Frontiers in Low Temperature Plasma Diagnostics Conference, Saillon, Switzerland, p. 265 (1999).
- 5 *A two-photon LIF study on the transport of atomic radicals in a supersonic plasma jet.*  
S. Mazouffre, M.G.H. Boogaarts, R. Engeln, J.A.M. van der Mullen, D.C. Schram, 9th International Symposium on Laser-Aided Plasma Diagnostics, Lake-Tahoe, California, USA, p. 320 (1999).
- 6 *Laser-aided diagnostics and the physics of plasma expansion.*  
D.C. Schram, S. Mazouffre, M.G.H. Boogaarts, R. Engeln, M.C.M. van de Sanden, R.F.G. Meulenbroeks, J.A.M. van der Mullen, 9th International Symposium on Laser-Aided Plasma Diagnostics, Lake-Tahoe, California, USA, p. 364 (1999).
- 7 *In-flux and mixing of ambient gas in the supersonic domain of an expanding plasma jet.*  
R. Engeln, S. Mazouffre, N. Sadeghi, D.C. Schram, 15th Europhysics Conference on Atomic & Molecular Physics of Ionized Gases, Miskolc-Lillafüred, Hungary, p. 312 (2000).
- 8 *Transport of particles in plasma expansion: a laser spectroscopic study.*  
S. Mazouffre, M.G.H. Boogaarts, R. Engeln, D.C. Schram, 53rd Gaseous Electronics Conference, Houston, USA, p. 60 (2000)
- 9 *Two-photon laser induced fluorescence spectroscopy: a powerful diagnostic tool to monitor ground-state atom properties in a plasma environment.*  
S. Mazouffre, R. Engeln, P. Vankan, and D.C. Schram, 4th Frontiers in Low Temperature Plasma Diagnostics Conference, Kerkrade, The Netherlands, p. 100 (2001).

- 10** *Transport of H and H<sub>2</sub> in an expanding hydrogen plasma.*  
P. Vankan, S. Mazouffre, R. Engeln, and D.C. Schram, 4th Frontiers in Low Temperature Plasma Diagnostics Conference, Kerkrade, The Netherlands, p. 181 (2001).
- 11** *Short Lived Afterglow of nitrogen microwave discharges revisited.*  
N. Sadeghi, A. Campargue, C. Foissac, P. Supiot, S. Mazouffre, R. Engeln, and D.C. Schram, 25th International Conference on Phenomena in Ionized Gases, Nagoya, Japan, p. 100 (2001).
- 12** *Non-equilibrium motion in a plasma shock wave: a LIF study on the velocity distribution in plasma expansions.*  
S. Mazouffre, P. Vankan, I. Bakker, R. Engeln, and D.C. Schram, 10th International Symposium on Laser-Aided Plasma Diagnostics, Fukuoka, Japan, p. 424 (2001).
- 13** *Interaction between free plasma jets and surfaces: from transport phenomena to molecule generation.*  
S. Mazouffre, R. Engeln, P. Vankan, D.C. Schram, V. Lago, and M. Dudeck, 16th European Conference on Atomic & Molecular Physics of Ionized Gases, Grenoble, France, vol. 2 p. 27 (2002).
- 14** *Density evolution of atoms and atomic radicals in plasma expansions.*  
R. Engeln, S. Mazouffre, P. Vankan, and D.C. Schram, 23rd Rarefied Gas Dynamics Symposium, Whistler, Canada, cd16-1 (2002).
- 15** *Supersonic plasma expansion in a low pressure chamber: continuum fluid mechanics versus DSMC method.*  
S.E. Selezneva, M.I. Boulos, M.C.M. van de Sanden, R. Engeln, S. Mazouffre and D.C. Schram, 23rd Rarefied Gas Dynamics Symposium, Whistler, Canada (2002).
- 16** *Laser sustained plasma in the flow field of a sonic nozzle.*  
A. Lebéhot, V. Lago, S. Mazouffre, M. Dudeck,  
Euromech Colloquium 440, Marseille, France p. 161 (2002).
- 17** *Martian plasma: arc-jet experiments and the SESAM simulation tool.*  
M. Lino da Silva, V. Lago, S. Mazouffre, A. Lebéhot, M. Dudeck, A. Chikhaoui, P. Boubert, EuroMech Colloquium 440, Marseille, France p. 165 (2002).
- 18** *Plasma formation during high speed flights in upper layers of the Earth's atmosphere.*  
S. Mazouffre, V. Lago, M. Lino da Silva, M. Dudeck, E. Pawelec,  
AIAA paper **02-5272** (2002).
- 19** *Temperature of xenon atoms in a Stationary Plasma Thruster.*  
S. Mazouffre, D. Pagon, P. Lasgorseix, M. Touzeau, 28th International Electric Propulsion Conference, Toulouse, France, paper **283** (2003).
- 20** *A LIF study on the 823.2 nm Xe transition in a magnetic field: application to Xe atom temperature measurement in a plasma thruster.*  
S. Mazouffre, D. Pagnon, A. Bouchoule, 11th International Symposium on Laser-Aided Plasma Diagnostics, Les Houches, France (2003).

- 21** *A LIF study on the velocity distribution of xenon ions in a Hall thruster: Insights into time averaged and time resolved measurements.*  
J. Bonnet, S. Mazouffre, M. Prioul, N. Sadeghi, V. Vial, A. Bouchoule, 11th International Symposium on Laser-Aided Plasma Diagnostics, Les Houches, France (2003).
- 22** *Operating characteristics of the SR5 hypersonic plasma wind-tunnel.*  
S. Mazouffre, V. Caubet-Hilloutou, M. Dudeck, E. Pawelec, International Workshop on Radiation of High Temperature Gases in Atmospheric Entry, Lisbon, Portugal, ESA Proceedings **SP-533**, 47 (2003).
- 23** *Fluid mechanics calculations as a support tool for experimental investigations using the SR5 wind-tunnel.*  
M. Lino da Silva, T. Alexandrova, S. Mazouffre, M. Dudeck, R. Reis, J.C.F. Pereira, International Workshop on Radiation of High Temperature Gases in Atmospheric Entry, Lisbon, Portugal, ESA Proceedings **SP-533**, 63 (2003).
- 24** *Experimental investigation of the flow properties of rarefied hypersonic plasma jets. - Fabry-Pérot Interferometry and Laser Induced Fluorescence -*  
S. Mazouffre, E. Pawelec, V. Caubet-Hilloutou, M. Dudeck, AIAA paper **03-3747** (2003).
- 25** *Plasma induced erosion phenomena in a Hall thruster.*  
S. Mazouffre, F. Dubois, L. Albarède, D. Pagnon, M. Touzeau, M. Dudeck, IEEE Conference Proceedings 03EX743, Recent Advances in Space Technologies, p. 69-74 (2003).
- 26** *Examination of Hall thruster Xe ion flow features by means of Fabry-Pérot interferometry.*  
S. Mazouffre, P. Lasgorceix, N. Claire, D. Pagnon, 4th International Spacecraft Propulsion Conference, Sardinia, Italy, ESA Proceedings **SP-555**, 13 (2004).
- 27** *Lessons learned from infrared thermal imaging of Hall effect thrusters.*  
S. Mazouffre, P. Echegut, F. Dubois, M. Dudeck, 4th International Spacecraft Propulsion Conference, Sardinia, Italy, ESA Proceedings **SP-555**, 26 (2004).
- 28** *Use of the Empirical Mode Decomposition method to analyse plasma oscillations in a Hall effect thruster.*  
J. Kurzyna, K. Makowski, Z. Peradzyński, L. Albarède, S. Mazouffre, M. Dudeck, 2nd German-polish Conference on Plasma Diagnostics for Fusion and Applications, Cracow, Poland (2004).
- 29** *Two ways to evaluate the Xe<sup>+</sup> ion flow velocity in a Hall thruster: Fabry-Pérot interferometry and LIF spectroscopy.*  
S. Mazouffre, D. Pagnon, J. Bonnet, AIAA paper **04-3949** (2004).
- 30** *Insights into high- and low-frequency dynamics in Hall thrusters*  
A. Lazurenko, V. Vial, A. Bouchoule, L. Albarède, S. Mazouffre, M. Dudeck, Asian Joint Conference on Propulsion and Power, Fukuoka, Japan (2005).

- 31** *Time-resolved LIF study on xenon plasma decay after fast interruption: Applications to Hall effect thruster.*  
D. Gawron, S. Mazouffre, N. Sadeghi, T. Gibert, A. Bouchoule, 6th Workshop on Frontiers in Low Temperature Plasma Diagnostics, Les Houches, France (2005)
- 32** *Measurements of isotopic shifts and hyperfine components of near-infrared spectral lines in xenon and krypton based on Lamb-dip saturation spectroscopy.*  
S. Mazouffre, N. Sadeghi, 6th Workshop on Frontiers in Low Temperature Plasma Diagnostics, Les Houches, France (2005)
- 33** *Spectroscopic study of Xe I and Xe II emission lines in an UHF discharge: A useful tool for OES and LIF investigation of Hall effect thruster.*  
A. Bouchoule, T. Gibert, S. Mazouffre, XXVIIth International Conference on Phenomena in Ionized Gases, Eindhoven, The Netherlands (2005).
- 34** *Recent advances in dual-mode Hall effect thruster development.*  
A. Lazurenko, S. Mazouffre, M. Prioul, O. Duchemin, D. Arrat, M. Dudeck, IEEE Conference Proceedings 05EX1011, Recent Advances in Space Technologies, p. 339-343 (2005).
- 35** *An infrared thermography study on the thermal load experienced by a high power Hall effect thruster.*  
S. Mazouffre, J. Perez Luna, D. Gawron, P. Echegut, M. Dudeck, 29th International Electric Propulsion Conference, Princeton, NJ, paper **63** (2005).
- 36** *Parametric study on the acceleration layer in a high power Hall effect thruster by Fabry-Pérot spectroscopy.*  
D. Gawron, S. Mazouffre, C. Boniface, 29th International Electric Propulsion Conference, Princeton, NJ, paper **144** (2005).
- 37** *Characterization of Hall effect thruster plasma oscillations based on the Hilbert-Huang transform.*  
G. Bonhomme, J. Kurzyna, S. Mazouffre, L. Albarède, C. Enjolras, M. Dudeck, 29<sup>th</sup> International Electric Propulsion Conference, Princeton, NJ, paper **46** (2005).
- 38** *Hall effect thruster with an AlN chamber.*  
S. Barral, Y. Jayet, E. Véron, S. Mazouffre, P. Echegut, M. Dudeck, International Conference PLASMA 2005 on Research and Applications of Plasmas, Opole, Poland (2005).  
AIP Conference Proceedings, American Institute of Physics, vol. **812**, p. 427-430 (2006).
- 39** *Search for frequency content of Hall effect thruster plasma instabilities with the Hilbert-Huang transform.*  
J. Kurzyna, K. Makowski, A. Lazurenko, S. Mazouffre, M. Dudeck, G. Bonhomme, Z. Peradzyński, International Conference PLASMA 2005 on Research and Applications of Plasmas, Opole, Poland (2005).  
AIP Conference Proceedings, American Institute of Physics, vol. **812**, p. 411-414 (2006).

- 40** *Potential distribution in the near field of a Hall effect thruster: A laser spectroscopy study.*  
S. Mazouffre, D. Gawron, N. Sadeghi, 18th European Conference on Atomic & Molecular Physics of Ionized Gases, Lecce, Italy (2006).
- 41** *Examination of Hall effect thruster acceleration layer characteristics by laser spectroscopy and retarding potential analyzer.*  
D. Gawron, S. Mazouffre, L. Albarède, N. Sadeghi,  
AIAA paper **06-4473** (2006).
- 42** *Expanding frontiers: Towards high power Hall effect thrusters for interplanetary journeys.*  
S. Mazouffre, A. Lazurenko, P. Lasgorceix, M. Dudeck, S. d'Escrivan, O. Duchemin, 7th International Symposium on Launcher Technologies, Barcelona, Spain, paper **O-25** (2007).
- 43** *Metastable oxygen atom velocity and temperature in expanding CO<sub>2</sub> plasma jets.*  
S. Mazouffre, E. Pawelec, 28th International Conference on Phenomena in Ionized Gases, Prague, Czech Republic, paper **4P06-08** (2007).
- 44** *A novel approach for assessing the electron transport properties in plasma thrusters.*  
G. Coduti, A. Lazurenko, C. Cavoit, V. Krasnoselskikh, S. Mazouffre, 28th International Conference on Phenomena in Ionized Gases, Prague, Czech Republic, paper **1P01-17** (2007)
- 45** *Global evaluation and direct measurement of the energy transfer between an ICP argon plasma and a surface.*  
R. Dussart, A.-L. Thomann, N. Semmar, L.E. Pichon, J.-F. Lagrange, J. Mathias, S. Mazouffre, 18<sup>th</sup> International Symposium on Plasma Chemistry, Kyoto, Japan (2007).
- 46** *Performance and physical characteristics of a 5 kW-class Hall effect thruster for space missions.*  
S. Mazouffre, D. Gawron, A. Lazurenko, M. Dudeck, S. d'Escrivan, O. Duchemin, 2nd European Conference for Aerospace Sciences, Brussels, Belgium, paper **234** (2007).
- 47** *A laser spectroscopic study on Xe<sup>+</sup> ion transport phenomena in a 5 kW-class Hall effect thruster.*  
S. Mazouffre, D. Gawron, V. Kulaev, N. Sadeghi, 30th International Electric Propulsion Conference, Florence, Italy, paper **160** (2007).
- 48** *Characterization of High Frequency plasma oscillations in a Hall effect thruster.*  
G. Bonhomme, N. Lemoine, F. Brochard, A. Lazurenko, S. Mazouffre, M. Dudeck, 30th International Electric Propulsion Conference, Florence, Italy, paper **247** (2007).
- 49** *Investigation of electron transport properties in Hall thrusters through measurements of magnetic field fluctuations.*  
G. Coduti, A. Lazurenko, S. Mazouffre, M. Dudeck, T. Dudock De Wit, C. Cavoit, V. Krasnoselskikh, A. Bouchoule, 30th International Electric Propulsion Conference, Florence, Italy, paper **143** (2007).
- 50** *Current and plasma oscillation inspection in the PPSX000 HET thruster: EMD approach.*  
J. Kurzyna, K. Makowski, Z. Peradzynski, A. Lazurenko, S. Mazouffre, G. Coduti, M. Dudeck, 30th International Electric Propulsion Conference, Florence, Italy, paper **239** (2007).

- 51** *Examination of the Xe<sup>+</sup> ion velocity distribution functions in a high power Hall effect thruster.*  
V. Kulaev, S. Mazouffre, D. Gawron, N. Sadeghi, 5th International Spacecraft Propulsion Conference, Heraklion, Crête, paper **42\_051** (2008).
- 52** *Diagnostics of a discharge in crossed electric and magnetic fields for electric propulsion.*  
S. Mazouffre, V. Kulaev, D. Gawron, N. Sadeghi, 19th Europhysics Conference on the Atomic and Molecular Physics of Ionized Gases, Granada, Spain, paper **T03** (2008).
- 53** *Supplying the discharge of a Hall effect thruster with RF power: A novel approach to enhance thruster performances.*  
S. Mazouffre, M. Dudeck, E. Kralkina, V. Pavlov, A. Rukhadze, K. Vavilin, A. Alexandrov, V. Savinov, V. Tarakanov, V. Kim, V. Kozlov, A. Skrylnikov, A. Bugrova, G. Bugrov, V. Kharchevnikov, A. Lipatov, A. Desyatskov, G. Kroesen, S. d'Escrivan, S. Zurbach, 5th International Spacecraft Propulsion Conference, Heraklion, Crête, paper **42\_068** (2008).
- 54** *Elementary scaling laws for the design of low and high power Hall effect thrusters.*  
S. Mazouffre, K. Dannenmayer, 3rd European Conference for Aerospace Sciences, Versailles, France, paper **53** (2009).
- 55** *Determination of the axial electron mobility profile in the PPSX000 thruster.*  
L. Garrigues, J. Pérez-Luna, J. Lo, G.J.M. Hagelaar, J.P. Boeuf, S. Mazouffre, 31st International Electric Propulsion Conference, Ann Arbor, Michigan, paper **09-082** (2009).
- 56** *Elementary scaling laws for sizing up and down Hall effect thrusters: Impact of simplifying assumptions.*  
K. Dannenmayer, S. Mazouffre, 31st International Electric Propulsion Conference, Ann Arbor, Michigan, paper **09-077** (2009).
- 57** *Examination of the temporal characteristics of electric field in a Hall effect thruster using a photon-counting technique.*  
G. Bourgeois, S. Mazouffre, 31st International Electric Propulsion Conference, Ann Arbor, Michigan, paper **09-111** (2009).
- 58** *Plasma Propulsion with electronegative gases.*  
A. Aanesland, L. Popelier, G. Leray, P. Chabert, S. Mazouffre, D. Gerst, 31st International Electric Propulsion Conference, Ann Arbor, Michigan, paper **09-01** (2009).
- 59** *Electric probe measurements of plasma oscillations in the 100-500 kHz range within the discharge of the PPS<sup>®</sup>X000 Hall thruster.*  
J. Kurzyna, S. Mazouffre, V. Kulaev, 31st International Electric Propulsion Conference, Ann Arbor, Michigan, paper **09-101** (2009).
- 60** *Measurement of plasma properties in the plume far-field of a Hall effect thruster using Langmuir and emissive probes.*  
K. Dannenmayer, S. Mazouffre, P. Kudrna, M. Tichý, International Conference on Plasma Diagnostics, Pont-à-Mousson, France, (2010).

- 61** *A time-resolved photon counting spectroscopy study on the ion velocity oscillations in a crossed-field discharge.*  
G. Bourgeois, S. Mazouffre, N. Sadeghi, International Conference on Plasma Diagnostics, Pont-à-Mousson, France, (2010).
- 62** *Spectroscopic investigation of a low-temperature plasma in a magnetic field*  
E. Pawelec, S. Mazouffre, P. Ortwein, International Conference on Plasma Diagnostics, Pont-à-Mousson, France, (2010).
- 63** *Effect of channel geometry on discharge properties and performances of a low-power Hall effect thruster.*  
S. Mazouffre, K. Dannenmayer, G. Bourgeois, M. Guyot, S. Denise, P. Renaudin, V. Gagan, M. Dudeck, Space Propulsion conference, San Sebastian, Spain (2010).
- 64** *Ion and atom flow in a Hall thruster discharge*  
S. Mazouffre, 63rd Gaseous Electronic Conference, Paris, France (2011).
- 65** *Lessons learned from measurements of the ion velocity distribution function in the discharge of a Hall effect thruster.*  
S. Mazouffre, G. Bourgeois, N. Sadeghi, IX Workshop on Frontiers in Low-Temperature Plasma Diagnostics, Zinnowitz, Germany, p. 36 (2011).
- 66** *Impact of discharge chamber geometry on characteristics of a low-power Hall thruster.*  
S. Mazouffre, K. Dannenmayer, G. Bourgeois, A. Lejeune, M. Guyot, S. Denise, P. Renaudin, V. Cagan, International Conference on Recent Advances in Space Technologies, Istanbul, Turkey, IEEE Xplore 5966939, p. 735 (2011).
- 67** *Extraction and acceleration of ions from an ion-ion plasma – Application to space propulsion.*  
L. Popelier, A. Aanesland, S. Mazouffre, P. Chabert, 5th International Conference on Recent Advances in Space Technologies, Istanbul, Turkey, IEEE Xplore 5966933, p. 708 (2011).
- 68** *Time-resolved measurements of plasma properties in the far-field plume of a low-power Hall effect thruster.*  
K. Dannenmayer, S. Mazouffre, P. Kudrna, M. Tichý, 32nd International Electric Propulsion Conference, Wiesbaden, Germany, paper **11-219** (2011).
- 69** *Investigation of ion-ion plasmas for application in electric thrusters.*  
D. Gerst, M. Cirisan, S. Mazouffre, A. Aanesland, 32nd International Electric Propulsion Conference, Wiesbaden, Germany, paper **11-127** (2011).
- 70** *Ion velocity evolution with channel width, magnetic topology and propellant in a 200 W Hall thruster.*  
G. Bourgeois, A. Lejeune, S. Mazouffre, 32nd International Electric Propulsion Conference, Wiesbaden, Germany, paper **11-123** (2011).
- 71** *Impact of the channel width on Hall thruster discharge properties and performances.*  
A. Lejeune, K. Dannenmayer, G. Bourgeois, S. Mazouffre, M. Guyot, S. Denise, 32nd International Electric Propulsion Conference, Wiesbaden, Germany, paper **11-019** (2011).



- 72** *High power electric propulsion for robotic exploration of our Solar system.*  
S. Mazouffre, A. Lejeune, 1st International Conference on Space Access, Paris, France, paper **51** (2011).
- 73** *Operation of the PEGASES thruster with xenon.*  
D. Gerst, F. Graf, S. Mazouffre, A. Aanesland, L. Popelier, 3<sup>rd</sup> Space Propulsion Conference, Bordeaux, France, paper **2354312** (2012).
- 74** *Performances of a variable channel width Hall thruster operating with xenon and krypton.*  
S. Mazouffre, K. Dannenmayer, G. bourgeois, A. Lejeune, 3<sup>rd</sup> Space Propulsion Conference, Bordeaux, France, paper **2360355** (2012).
- 75** *Plasma drift in a low-pressure magnetized RF discharge.*  
S. Mazouffre, D. Gerst, S. Cuynet, M. Cirisan, 21st Europhysics Conference on the Atomic and Molecular Physics of Ionized Gases, Viana do Castelo, Portugal (2012).
- 76** *Hall effect thruster plasma plume characterization with probe measurements and self-similar fluid models.*  
K. Dannenmayer, S. Mazouffre, M. Merino, E. Ahedo, 48th AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit, Atlanta, Georgia, AIAA paper **12-4117** (2012).
- 77** *Experimental study of acceleration processes in Hall effect thrusters.*  
J. Vaudolon, S. Mazouffre, D. Gerst, S. Tsikata, 63rd International Astronautical Congress, Naples, Italy, paper IAC **12-E218** (2012).
- 78** *Recent progress in understanding the physics of Hall thrusters.*  
S. Mazouffre, S. Tsikata, K. Dannenmayer, G. Bourgeois, A. Lejeune, J. Vaudolon, L. Balika, A. Pétin, 31st International Conference on Phenomena in Ionized Gases, Grenada, Spain, paper **PS2-110** (2013).
- 79** *Design and first test campaign results with a new flexible magnetic circuit for a Hall thruster.*  
L. Garrigues, S. Mazouffre, C.Hénaux, R. Vilamot, A.Rossi , D. Harribey, G. Bourgeois, J. Vaudolon, S. Zurbach, 33rd International Electric Propulsion Conference, Washington DC, IEPC paper **13-250** (2013).
- 80** *ExB probe investigation of the PEGASES thruster ion beam in Xe and SF<sub>6</sub>.*  
D. Gerst, D. Renaud, S. Mazouffre, P. Chabert, A. Aanesland, 33rd International Electric Propulsion Conference, Washington DC, IEPC paper **13-130** (2013).
- 81** *Time-averaged and time-varying plasma potential in the near-field plume of a Hall thruster.*  
A. Pétin, S. Mazouffre, K. Dannenmayer, P. Kudrna, M. Tichý, 33rd International Electric Propulsion Conference, Washington DC, IEPC paper **13-214** (2013).
- 82** *Low and high frequency oscillations of the accelerating electric field in a Hall thruster.*  
J. Vaudolon, B. Khiar, S. Mazouffre, 33rd International Electric Propulsion Conference, Washington DC, IEPC paper **13-089** (2013).

- 83** *Time-dependent ion velocity distribution: A novel heterodyne Laser-Induced Fluorescence with coupled wave excitation.*  
A. Diallo, Y. Shi, S. Keller, Y. Raitses, S. Mazouffre, 33rd International Electric Propulsion Conference, Washington DC, IEPC paper **13-239** (2013).
- 84** *3D simulation of rotating spoke in a Hall thruster*  
K. Matyash, R. Schneider, S. Mazouffre, S. Tsikata, Y. Raitses, A. Diallo, 33rd International Electric Propulsion Conference, Washington DC, IEPC paper **13-307** (2013).
- 85** *Plasma composition and ion acceleration in the PEGASES thruster.*  
D. Renaud, S. Mazouffre, A. Aanesland, 4th Space Propulsion Conference, Cologne, Germany, paper **2969109** (2014).
- 86** *Evaluation of different methods for determining the electric field profile in a Hall thruster.*  
J. Vaudolon, A. Pétin, S. Mazouffre, 4th Space Propulsion Conference, Cologne, Germany, paper **2979732** (2014).
- 87** *Hall thruster with external electric field.*  
S. Mazouffre, S. Tsikata, J. Vaudolon, 4th Space Propulsion Conference, Cologne, Germany, paper **2970604** (2014).
- 88** *Performance analysis of a Hall thruster with a highly versatile magnetic circuit.*  
S. Mazouffre, G. Bourgeois, J. Vaudolon, L. Garrigues, C. Hénaux, D. Harribey, R. Vilamot, A. Rossi, S. Zurbach, D. Le Méhauté, 4th Space Propulsion Conference, Cologne, Germany, paper **2969094** (2014).
- 89** *Using an emissive probe to measure time-averaged plasma potential in a Hall thruster discharge.*  
A. Pétin, J. Vaudolon, S. Mazouffre, P. Kudrna, M. Tichý, Proceedings of the 20<sup>th</sup> International Conference on Gas Discharges and their Applications, Orléans, France, 2014.
- 90** *Development and characterization of a wall-less Hall thruster.*  
S. Mazouffre, S. Tsikata, J. Vaudolon, Proceedings of the 50<sup>th</sup> Joint-Propulsion Conference, Cleveland, Ohio, AIAA paper 2014-3513.
- 91** *Development and test of the negative and positive ion thruster PEGASES.*  
A. Aanesland, D. Rafalskyi, T. Lafleur, P. Grondein, P. Chabert, S. Mazouffre, D. Renaud, L. Garrigues, G.J.M. Hagelaar, D. Levko, Proceedings of the 50<sup>th</sup> Joint-Propulsion Conference, Cleveland, Ohio, AIAA paper 2014-3424.
- 92** *Investigation of the ion transit time instability in a Hall thruster combining time-resolved LIF spectroscopy and analytical calculations*  
J. Vaudolon, S. Mazouffre, Proceedings of the 34th International Electric Propulsion Conference, Hyogo-Kobe, Japan, IEPC paper 2015-400.
- 93** *Investigation of the PEGASES thruster magnetic filter via laser photodetachment experiments*  
D. Renaud, S. Mazouffre, E. Pawelec, Proceedings of the 34th International Electric Propulsion Conference, Hyogo-Kobe, Japan, IEPC paper 2015-380.

- 94** *Plasma-wall interaction and Hall thruster microturbulence*  
S. Tsikata, C. Honoré, A. Héron, A. Pétrin, S. Mazouffre, Proceedings of the 34th International Electric Propulsion Conference, Hyogo-Kobe, Japan, IEPC paper 2015-339.
- 95** *Qualification of the AEPD system as a standard on-ground tool for electric propulsion thruster*  
D. Pagano, F. Scortecci, C. Bundesmann, C. Eichhorn, F.Scholze, H. Neumann, H. Leiter, H. Kersten, R. Blott, P.J. Klar, K. Holste, B Meyer, S Mazouffre, A. Bulit, J Gonzalez del Amo, Proceedings of the 34th International Electric Propulsion Conference, Hyogo-Kobe, Japan, IEPC paper 2015-363.
- 96** *Fully two-dimensional particle-in-cell Monte Carlo collisions model of a wall-less Hall thruster*  
L. Garrigues, J. Vaudolon, S. Mazouffre, S. Tsikata, Proceedings of the 34th International Electric Propulsion Conference, Hyogo-Kobe, Japan, IEPC paper 2015-311.
- 97** *Optimization of the design of a wall-less Hall thruster*  
S. Mazouffre, J. Vaudolon, S. Tsikata, C. Hénaux, D. Harribey, and A. Rossi, Proceedings of the 34th International Electric Propulsion Conference, Hyogo-Kobe, Japan, IEPC paper 2015-182.
- 98** *Investigation of the ion transit time instability in a Hall thruster combining time-resolved LIF spectroscopy and analytical calculations*  
J. Vaudolon and S. Mazouffre, Proceedings of the 51<sup>st</sup> Joint-Propulsion Conference, Orlando, Florida, AIAA paper 2015-4004.
- 99** *Impact of the magnetic barrier extent on the performance of a krypton-fueled Hall thruster*  
J. Vaudolon and S. Mazouffre, Proceedings of the 51<sup>st</sup> Joint-Propulsion Conference, Orlando, Florida, AIAA paper 2015-3922.
- 100** *Optimization of magnetic field topology and anode geometry for a wall-less Hall thruster*  
S. Mazouffre, J. Vaudolon, S. Tsikata, G. Largeau, C.H. Hénaux, D. Harribey, A. Rossi, J. Gonzalez del Amo, A. Bulit, and K. Dannenmayer, Proceedings of the 51<sup>st</sup> Joint-Propulsion Conference, Orlando, Florida, AIAA paper 2015-4007.
- 101** *Novel architecture for an ion-ion plasma thruster*  
D. Renaud, S. Mazouffre, Proceedings of the 5<sup>th</sup> Space Propulsion Conference, Rome, Italy, paper 3124800 (2016).
- 102** *Design and characterization of a 200 W low power Hall thruster in magnetic shielding and wall less configurations*  
L. Grimaud, S. Mazouffre, Proceedings of the 5<sup>th</sup> Space Propulsion Conference, Rome, Italy, paper 3124890 (2016).
- 103** *Physics of a disk-shaped heated LaB<sub>6</sub> cathode for Hall thrusters*  
R. Jousot, L. Grimaud, S. Mazouffre, Proceedings of the 5<sup>th</sup> Space Propulsion Conference, Rome, Italy, paper 3124900 (2016).
- 104** *Design and characterization of a 200W Hall thruster in magnetic shielding configuration*  
L. Grimaud, J. Vaudolon, S. Mazouffre, C. Boniface Proceedings of the 52<sup>nd</sup> Joint-Propulsion Conference, Salt Lake City, Utah, AIAA paper 2016-4832.

- 105** *Incoherent Thomson scattering diagnostic development for plasma propulsion investigations*  
B. Vincent, S. Tsikata, G. Potrivitu, S. Mazouffre, 18th International Symposium on Laser-Aided Plasma Diagnostics, Prague, Czech Republic, paper 16 (2017).
- 106** *Experimental and numerical investigations of a 5 A-class cathode with a LaB6 flat disk emitter in the 2 A-20 A current range*  
R. Joussot, G. Sary, L. Grimaud, L. Garrigues, S. Mazouffre, B. Laurent, C. Boniface, S. Oriol, F. Masson, Proceedings of the 35th International Electric Propulsion Conference, Atlanta, Georgia, IEPC paper 2017-486.
- 107** *Ion acceleration through a magnetic barrier. Toward an optimized double-stage Hall thruster concept*  
L. Dubois, F. Gaboriau, L. Liard, D. Harribey, C. Henaux, J.P. Boeuf, S. Mazouffre, C. Boniface, Proceedings of the 35th International Electric Propulsion Conference, Atlanta, Georgia, IEPC paper 2017-215.
- 108** *Experimental determination of the plasma properties in the far-plume of a SPT-100 Hall thruster*  
G. Giono, S. Mazouffre, D. Loubère, L. Popelier, C. Théroude, K. Dannenmayer, F. Marguet, J. T. Gudmundsson, N. Ivchenko, G. Olentsenko, M. Merino, Proceedings of the 35th International Electric Propulsion Conference, Atlanta, Georgia, IEPC paper 2017-385.
- 109** *Evaluation of various probe designs for measuring the ion current density in a Hall thruster plume*  
S. Mazouffre, G. Largeau, L. Garrigues, C. Boniface, K. Dannenmayer, Proceedings of the 35th International Electric Propulsion Conference, Atlanta, Georgia, IEPC paper 2017-336.
- 110** *Investigation of rotating spoke instabilities in a wall-less Hall thruster. Part I: Experiments*  
S. Mazouffre, L. Grimaud, S. Tsikata, K. Matyash, R. Schneider, Proceedings of the 35th International Electric Propulsion Conference, Atlanta, Georgia, IEPC paper 2017-248.
- 111** *Investigation of rotating spoke instabilities in a wall-less Hall thruster. Part II: Simulations*  
K. Matyash, R. Schneider, S. Mazouffre, L. Grimaud, S. Tsikata, Proceedings of the 35th International Electric Propulsion Conference, Atlanta, Georgia, IEPC paper 2017-403.
- 112** *Model and experimental validation of spacecraft-thruster interactions for electric propulsion thruster plumes*  
L. Popelier, C. Théroude, D. Loubère, k. Dannenmayer, P. Sarrailh, S. Hess, Merino, P. Fajardo, E. Ahedo, S. Mazouffre, G. Giono, J. T. Guðmundsson, N. Ivchenko, Proceedings of the 35th International Electric Propulsion Conference, Atlanta, Georgia, IEPC-2017-357.
- 113** *Application of force measuring probes for the investigation of sputtering and as diagnostic for HEMP and Hall thrusters*  
A Spethmann, T. Trottenberg, H. Kersten, F. G. Hey, L. Grimaud, S. Mazouffre, Proceedings of the 35th International Electric Propulsion Conference, Atlanta, Georgia, IEPC paper 2017-245.
- 114** *Incoherent Thomson scattering diagnostic development for plasma propulsion investigations*  
B. Vincent, S. Tsikata, G-C. Potrivitu, S. Mazouffre, Proceedings of the 35th International Electric Propulsion Conference, Atlanta, Georgia, IEPC paper 2017-442.

- 115** *Performance comparison between standard and magnetically shielded 200 W Hall thrusters with BN-SiO<sub>2</sub> and graphite channel walls*  
L. Grimaud, S. Mazouffre, C. Boniface, Proceedings of the 35th International Electric Propulsion Conference, Atlanta, Georgia, IEPC paper 2017-172.
- 116** *Design of a 100 A-class LaB<sub>6</sub> cathode for high-power electric propulsion*  
L. Garrigues, G. Sary, R. Jousset, L. Grimaud, S. Mazouffre, B. Laurent, C. Boniface, S. Oriol, F. Masson, proceedings of 6<sup>th</sup> Space Propulsion conference, Seville, Spain, paper SP-473 2018.
- 117** *Anode geometry influence on a hot LaB<sub>6</sub> cathode in diode configuration*  
G.-C. Potrivitu, L. Grimaud, R. Jousset, S. Mazouffre, proceedings of the 6<sup>th</sup> Space Propulsion conference, Seville, Spain, paper SP-353 2018.
- 118** *Simulation and optimization of a 200 W magnetically shielded Hall thruster with various discharge channel materials*  
L. Grimaud, S. Santhosh, L. Garrigues, S. Mazouffre, proceedings of the 6<sup>th</sup> Space Propulsion conference, Seville, Spain, paper SP-374 2019.
- 119** *Characterization of miniature Hall thruster plume in the 50 - 200 W power range*  
S. Mazouffre, T. Hallouin, M. Inchingolo, A. Gurciullo, P. Lascombes, J.-L. Maria, Proceedings of the 8th European Conference for Aeronautics and Space Sciences, Madrid, Spain, paper 214.
- 120** *Numerical modeling and incoherent Thomson scattering measurements of a 5A cathode with LaB<sub>6</sub> emitter*  
L. Garrigues, G. Sary, B. Vincent, S. Tsikata, S. Mazouffre  
Proceedings of the 36th International Electric Propulsion Conference, Vienna, Austria  
IEPC paper 2019-783.
- 121** *Thomson scattering investigations of a low-power Hall thruster in standard and magnetically-shielded configurations*  
B. Vincent, S. Tsikata, S. Mazouffre, C. Boniface  
Proceedings of the 36th International Electric Propulsion Conference, Vienna, Austria  
IEPC paper 2019-384.
- 122** *Far-field plume diagnostic of the 100 W-class ISCT100-v2 Hall thruster*  
T. Hallouin, S. Mazouffre, M. Inchingolo, A. Gurciullo, P. Lascombes, J.-L. Maria  
Proceedings of the 36th International Electric Propulsion Conference, Vienna, Austria  
IEPC paper 2019-617.
- 123** *Operation of a low power Hall thruster with a shielded magnetically configuration*  
L. Garrigues, S. Santhosh, L. Grimaud, S. Mazouffre  
Proceedings of the 36th International Electric Propulsion Conference, Vienna, Austria  
IEPC paper 2019-619.
- 124** *Faraday cup study on ion beam for different electric propulsion technologies*  
V. Hugonnaud, D. Krejci, S. Mazouffre, T. Lejosne, Q. Koch, E. Bosh  
Proceedings of the 36th International Electric Propulsion Conference, Vienna, Austria  
IEPC paper 2019-803.

- 125** *Characterization of a 100 A-class LaB<sub>6</sub> hollow cathode for high-power Hall thrusters*  
S. Mazouffre, R. Jousset, B. Vincent, S. Tsikata, S. Oriol, F. Masson, Proceedings of the 36th International Electric Propulsion Conference, Vienna, Austria  
IEPC paper 2019-776.
- 126** *New insights into electron transport due to azimuthal drift in a Hall effect thruster*  
K. Hara, Y. Yamashita, S. Tsikata, B. Vincent, S. Mazouffre, S. Cho, Proceedings of the 36th International Electric Propulsion Conference, Vienna, Austria  
IEPC paper 2019-691.
- 127** *HIPATIA: A project for the development of the Helicon Plasma Thruster and its associated technologies to intermediate-high TRLs*  
M. Ruiza, V. Gómez, P. Fajardo, J. Navarro, G. Dickeli, A. Vinci, S. Mazouffre, N. Hildebrand, Proceedings of the 71st International Astronautical Congress – The CyberSpace Edition, 12-14 October 2020, Paper IAC-20-C4.5.12.
- 128** *Faraday cup design for low power electric thrusters*  
V. Hugonnaud, S. Mazouffre, D. Krejci, C. Scharlemann, B. Seifert, Proceedings of the Space Propulsion conference, 17-19 March 2021, paper SP-00281
- 129** *Electron and ion properties in the beam and discharge of a Helicon plasma source for application in spacecraft propulsion*  
Alfio E. Vinci, Stéphane Mazouffre, Proceedings of the Space Propulsion conference, 17-19 March 2021, paper SP-00471
- 130** *E×B probe measurements in the plasma plume of a 100 W-class Hall thruster*  
T. Hallouin, S. Mazouffre, Proceedings of the Space Propulsion conference, 17-19 March 2021, paper SP-00270

## CONGRES - CONFÉRENCES

### 1 SYMPOSIUMS INTERNATIONAUX

*Time-resolved fluorescence study of the electron dynamics in an expanding argon plasma.*

Gordon Research Conference on Plasma Processing Science  
Tilton, New Hampshire, USA (9-14 Août 1998). [Affiche]

*A 2-photon LIF study on the transport of atomic hydrogen in an expanding Ar-H<sub>2</sub> plasma jet.*

1st Euroregional Workshop on Low Temperature Plasma Physics,  
Kerkrade, The Netherlands (Nov. 1998).

*A 2-photon LIF study on the expansion behaviour of a plasma beam generated from an Ar-H<sub>2</sub> mixture.*

3rd Frontiers in Low Temperature Plasma Diagnostics Conference  
Saillon, Zwitserland (15-19 Fév. 1999). [Affiche]

*Transport of neutral atomic hydrogen in a supersonic plasma jet.*

2nd International Symposium on Heat and Mass Transfer under Plasma Conditions,  
Antalya, Turkey (18-23 Avril 1999).

*A two-photon LIF study on the transport of atomic radicals in a supersonic plasma jet.*

9th International Symposium on Laser-Aided Plasma Diagnostics Symposium  
Lake Tahoe, California, USA (26 Sept. – 1er Oct 1999). [Affiche]

*The Physics of Plasma Expansion.*

2nd Euroregional Workshop on Low Temperature Plasma Physics,  
Kerkrade, The Netherlands (Déc. 1999).

*Transport of atomic radicals in expanding plasmas: a laser spectroscopy study.*

6th European Thermal Plasma Processes Conference,  
Strasbourg, France (30 Mai – 2 Juin 2000).

*Transport of particles in plasma expansion: a laser spectroscopic study.*

53rd Gaseous Electronics Conference,  
Houston, Texas, USA (24-27 Oct. 2000).

*Transport of H atoms in an expanding hydrogen plasma.*

3rd Euroregional Workshop on Low Temperature Plasma Physics  
Kerkrade, The Netherlands (Nov. 2000). [Affiche]

*Transport of H atoms and H<sub>2</sub> molecules in a weakly ionized hydrogen plasma expansion.*

2nd Euroconference: Hypersonic and Aerothermic Flows and Shocks, and Lasers  
Meudon, France (Mai 2001). [Affiche]

*Transport of H and H<sub>2</sub> in an expanding hydrogen plasma.*

4th Frontiers in Low Temperature Plasma Diagnostics Conference,  
Kerkrade, The Netherlands (25-29 Mars 2001).

*Non-equilibrium motion in a plasma shock wave: a LIF study on the velocity distribution in plasma expansions.*

10th International Symposium on Laser-Aided Plasma Diagnostics Symposium,  
Fukuoka, Japan (24-28 Sept. 2001).

*Interaction between free plasma jets and surfaces: from transport phenomena to molecule generation.*

16th Europhysics Conference on Atomic & Molecular Physics of Ionized Gases,  
Grenoble, France (14-18 Jul. 2002).

*Plasma formation during high speed flights in upper layers of the Earth's atmosphere.*

11th AIAA/AAAF Int. Conference on Space Planes and Hypersonic Systems and Technologies,  
Orléans, France (29 Sept. – 4 Oct. 2002).

*Temperature of neutral xenon atoms in a Stationary Plasma Thruster.*

28th International Electric Propulsion Conference,  
Toulouse, France (17-21 Mars 2003).

*Study of the flow dynamics of a hypersonic plasma jet.*

4ème Séminaire Franco-Polonais sur les Plasmas Thermiques dans l'Espace et en Laboratoire,  
Bourges, France (16-19 Juin 2003).

*Experimental investigation of the flow properties of rarefied hypersonic plasma jets.*

34th AIAA Plasmadynamics and Lasers Conference,  
Orlando, Florida, USA (23-26 Juin 2003).

*A LIF study on the 823.2 nm Xe transition in a magnetic field: application to Xe atom temperature measurement in a plasma thruster.*

11th International Symposium on Laser-Aided Plasma Diagnostics Symposium  
Les Houches, France (28 Sept. – 2 Oct. 2003). [Affiche]

*Hall propulsion for space mission: an overview.*

1st International Conference on Recent Advances in Space Technologies,  
Istanbul, Turkey (20-22 Nov. 2003).

*Examination of Hall thruster Xe ion flow features by means of Fabry-Pérot interferometry.*

*Lessons learned from infrared thermal imaging of a Hall thruster.*

4th International Spacecraft Propulsion Conference (ESA conference),  
Sardina, Italy (2-9 Juin 2004).

*Time-resolved analysis of Hall effect thruster radiations: New insights into heavy particle transport phenomena.*

APS meeting, 46th Annual meeting of the Division of Plasma Physics,  
Savannah, GA, USA (15-19 Nov. 2004).



*Measurements of isotopic shifts and hyperfine components of near-infrared spectral lines in xenon and krypton based on Lamb-dip saturation spectroscopy.*

6th Workshop on Frontiers in Low Temperature Plasma Diagnostics,  
Les Houches, France (17-21 Avril 2005).

European Workshop on Electric Propulsion Flight Experiences  
Villa Marigola, Lerici, Italy (1-2 Sept. 2005).

*An infrared thermography study on the thermal load experienced by a high power Hall effect thruster.*

*Parametric study on the acceleration layer in a high power Hall effect thruster by Fabry-Pérot spectroscopy.*

29th International Electric Propulsion Conference,  
Princeton University, NJ (31 Oct. – 4 Nov. 2005).

*Potential distribution in the near field of a Hall effect thruster: A laser spectroscopy study.*

18th European Conference on Atomic & Molecular Physics of Ionized Gases,  
Lecce, Italy (12-16 Jul. 2006). [Affiche]

*Expanding frontiers: Towards high power Hall effect thrusters for interplanetary journeys.*

7th International Symposium on Launcher Technologies.  
Barcelona, Spain (2-5 Avril 2007).

*Recent advances in the physics of high power hall effect thruster: Spatial and temporal characteristics of the  $Xe^+$  ion velocity distribution functions.*

34th European Physical Society Conference on Plasma Physics,  
Warsaw, Poland (2-6 Jul. 2007). [Invited Speaker]

*A laser spectroscopic study on  $Xe^+$  ion transport phenomena in a 5 kW-class Hall effect thruster.*

30th International Electric Propulsion Conference,  
Florence, Italy (17-20 Sept. 2007).

*A laser spectroscopic study on  $Xe^+$  ion transport phenomena in the  $E \times B$  discharge of a Hall effect thruster.*

PLASMA 2007 – International Conference on Research and Applications of Plasmas,  
Greifswald, Germany (16-19 Oct. 2007). [Invited Speaker]

Supplying the discharge of a Hall effect thruster with RF power: A novel approach to enhance thruster performances.

5th International Spacecraft Propulsion Conference,  
Heraklion, Crête (5-8 Mai 2008).

*Diagnostics of a discharge in crossed electric and magnetic fields for electric propulsion.*

19th Europhysics Conference on the Atomic and Molecular Physics of Ionized Gases,  
Granada, Spain (15-19 Jul. 2008). [Invited Speaker]

*Elementary scaling laws for the design of low and high power Hall effect thrusters.*

3rd European Conference for Aerospace Sciences,  
Versailles, France, (6-9 Jul. 2009).

*Examination of the temporal characteristics of electric field in a Hall effect thruster using a photon-counting technique.*

31st International Electric Propulsion Conference,  
Ann Arbor, Michigan (20-24 Sept. 2009).

*A time-resolved photon counting spectroscopy study on the ion velocity oscillations in a crossed field discharge.*

International Conference on Plasma Diagnostics,  
Pont-à-Mousson, France, (12-16 Avril 2010).

*Effect of channel geometry on discharge properties and performances of a low-power Hall effect thruster.*

Space Propulsion conference,  
San Sebastian, Spain (3-6 Mai 2010).

*Ion and atom flow in a Hall thruster discharge*

63rd Gaseous Electronic Conference  
Paris, France (5-8 Oct 2010). [\[Invited Speaker\]](#)

*Lessons learned from measurements of the ion velocity distribution function in the discharge of a Hall effect thruster.*

9th Frontiers in Low-Temperature Plasma Diagnostics,  
Zinnowitz, Germany (9-12 Mai 2011). [\[Invited Speaker\]](#)

*Impact of discharge chamber geometry on characteristics of a low-power Hall thruster.*

5th International Conference on Recent Advances in Space Technologies,  
Istanbul, Turkey (9-11 Juin 2011).

*Impact of the channel width on Hall thruster discharge properties and performances.*

32nd International Electric Propulsion Conference,  
Wiesbaden, Germany (11-16 Sept. 2011).

*High power electric propulsion for robotic exploration of our Solar system.*

1st International Conference on Space Access,  
Paris, France (21-23 Sept. 2011).

*Performances of a variable channel width Hall thruster operating with xenon and krypton.*

3<sup>rd</sup> Space Propulsion Conference,  
Bordeaux, France (7-10 Mai 2012).

*Time evolution of the EEDF in the plasma plume of a Hall thruster*

65<sup>th</sup> Gaseous Electronic Conference  
Austin, Texas, 22 – 26 Oct. 2012

*Recent progress in understanding the physics of Hall thrusters*

31st International Conference on Phenomena in Ionized Gases  
Grenade, Spain, 14 – 19 July 2013 [\[Invited Speaker\]](#)

*Electric Space Propulsion*

Table ronde *Low-temperature plasmas: Our discipline in 2030* [\[Invited Speaker\]](#)  
31st International Conference on Phenomena in Ionized Gases  
Grenade, Spain, 14 – 19 July 2013

*Design and first test campaign results with a new flexible magnetic circuit for a Hall thruster.*  
33rd International Electric Propulsion Conference,  
Washington DC, 6 – 10 Oct. 2013

*Hall thruster with external electric field.*  
4th Space Propulsion Conference,  
Cologne, Germany, 19 – 22 May 2014

*Development and characterization of a wall-less Hall thruster.*  
50th Joint-Propulsion Conference,  
Cleveland, Ohio, 28 – 30 July 2014

*Laser-aided diagnostics for Electric Propulsion*  
Electric Propulsion Innovation & Competitiveness (EPIC)  
Brussels' Museum of Natural Sciences, Brussels, 25 – 28 Nov. 2014

*Diagnostic methods for thruster plasma plume*  
21st Spacecraft Plasma Interactions Network in Europe (SPINE) meeting  
ESA Head Quarter, Paris, 19 – 21 May, 2015

*Optimization of magnetic field topology and anode geometry for a wall-less Hall thruster*  
51st Joint-Propulsion Conference,  
Orlando, Florida, 27 – 29 July 2015

*Anomalous electron transport*  
Workshop  
NASA – JPL, Pasadena, CA, 8 – 11 Sept. 2015 [\[Invited Speaker\]](#)

*Novel architecture for an ion-ion plasma thruster*  
5<sup>th</sup> Space Propulsion Conference  
Rome, Italy, 2 – 6 May 2016

*Laser-induced fluorescence spectroscopy applied to electric thrusters*  
Von Karman Institute for Fluid Dynamics, STO-AVT-VKI Lecture series 263, Electric  
propulsion systems, Brussels, 6 – 10 June 2016 [\[Invited Speaker\]](#)

*Design and characterization of a 200W Hall thruster in magnetic shielding configuration*  
52<sup>nd</sup> Joint-Propulsion Conference,  
Salt Lake City, Utah, 2 – 27 July 2016

*Hall thruster technology: from classical to wall-less architecture*  
International workshop on Ion Propulsion and accelerator industrial applications  
Bari, Italy, 1 – 3 March 2017 [\[Invited Speaker\]](#)

*Hall thruster configurations for nano/micro-satellite propulsion*  
1<sup>st</sup> International conference on MicroPropulsion and CubeSats  
Bari, Italy, 26 – 28 June 2017 [\[Invited Speaker\]](#)

*Investigation of rotating spoke instabilities in a wall-less Hall thruster. Part I: Experiments*  
35th International Electric Propulsion Conference  
Atlanta, Georgia, 8-12 Oct. 2017

*Miniature Hall thrusters for micro-spacecraft propulsion*  
2<sup>nd</sup> International conference on MicroPropulsion and CubeSats  
Singapore, 6 – 3 Jan. 2018 [\[Invited Speaker\]](#)

*Microthrusters for CubeSats*  
7th Interplanetary CubeSat Workshop  
Paris, France, 29-30 May 2018

*Laser-aided diagnostics applied to ion thrusters*  
15th International High-Tech Plasma Processes Conference  
Toulouse, France, 2-6 July 2018 [\[Invited Speaker\]](#)

*Incoherent Thomson scattering investigations for low-power propulsion plasmas: Application to cathode and HT characterization*  
3<sup>rd</sup> MicroPropulsion and CubeSats Workshop  
Washington, Chine, 31 July – 1 Aout 2018

*Characterization of a low-power Hall thruster plasma plume by means of Faraday cup and energy analyzer*  
4<sup>th</sup> MicroPropulsion and CubeSats Workshop  
Pékin, Chine, 8 – 11 May 2019 [\[Invited Speaker\]](#) [14]

*Characterization of miniature Hall thruster plume in the 50 - 200 W power range*  
8th European Conference for Aeronautics and Space Sciences  
Madrid, Spain, 1 – 4 July 2019

*Observation of time-varying atom and ion velocity distribution function in plasmas*  
PROMETEO (Plasma propulsion and nuclear fusion: innovating space transport) workshop  
University Carlos III, Madrid, Spain, 5 juil. 2019

*Characterization of a 100A-class LaB<sub>6</sub> hollow cathode for high-power Hall thrusters*  
36th International Electric Propulsion Conference  
Vienna, Austria, 15 – 20 Sept. 2019

*Interplanetary Small Satellite Conference*  
hosted by California Institute of Technology – JPL  
Pasadena, 11 – 12 May 2020  
Virtual conference – Online

*E×B probe measurements in the plasma plume of a 100 W-class Hall thruster*  
7<sup>th</sup> Space Propulsion conference  
7-19 March 2021  
Virtual edition

[66]

**2 CONGRÈS ET SÉMINAIRES NATIONAUX**

*Evidence for in-flux and mixing of ambient gas in the supersonic part of an expanding plasma jet.*  
11th Plasma Physics and Radiation Technology Conference  
Lunteren, The Netherlands (Mars 1998). [Affiche]

*A LIF study on the expansion behaviour of a plasma jet generated from an Ar-H<sub>2</sub> mixture.*  
12th Plasma Physics and Radiation Technology Conference,  
Lunteren, The Netherlands (Mars 1999).

*Radical defocusing in plasma expansion.*  
*A Vacuum-UV LIF setup to study the generation of molecules with high rovibrational excitation.*  
13th Plasma Physics and Radiation Technology Conference  
Lunteren, The Netherlands (Mars 2000). [Affiche]

*Plasma physics and space exploration.*  
15th Plasma Physics and Radiation Technology Conference  
Lunteren, The Netherlands (March 2002).

3ème Journées du Réseau des Plasma Froids  
Bonascre, France (17-20 Oct. 2004).

Atelier *Utilisation des diodes laser* du RPF  
Sarcenas, France (16-18 Mars 2005)  
N. Sadeghi, S. Mazouffre (organisateurs)

4ème Journées du Réseau des Plasma Froids  
Bonascre, France (9-12 Oct. 2005).

6ème Journées du Réseau des Plasma Froids  
Bonascre, France (2-5 Oct. 2007).  
Intervenant : *Nouvelles spectroscopies laser*

10ème Congrès de la Division Plasma de la SFP  
Paris, 19-21 Mai 2008

7ème Journées du Réseau des Plasma Froids  
Bonascre, France (29 Sept. - 2 Oct. 2009).

11ème Congrès de la Division Plasma de la SFP  
Talence, 9-12 Mai 2010.

*Rôle et actions du Réseau des Plasmas Froids du CNRS*  
1ère Rencontre nationale du Réseau des Technologies du Vide  
Lille, 28 Sept. - 1 Oct. 2010.

9ème Journées du Réseau des Plasma Froids  
Toulouse, France, 24 – 27 Mai 2011.

Atelier *Fonction de distribution en énergie dans un plasma* du RPF  
Orléans, France (21-23 Nov. 2011)  
S. Mazouffre, S. Béchu (organisateurs)

12ème Congrès de la Division Plasma de la SFP  
Orléans, 22-24 Mai 2012 (organisateur).

10ème Journées du Réseau des Plasma Froids  
Ecully, France, 9-11 Octobre 2012.

*Les décharges magnétisées pour la propulsion spatiale.*  
22ème Congrès général de la Société Française de Physique  
Colloque Plasmas pour l'énergie et plasmas magnétisés  
Marseille, France (1-5 juillet 2013). [Invité]

11ème Journées du Réseau des Plasma Froids  
La Rochelle, France, 14-17 Octobre 2013 (organisateur).

12ème Journées du Réseau des Plasma Froids  
La Rochelle, France, 20-23 Octobre 2014 (organisateur).

Atelier Réseau des Plasma Froids *Spectroscopie par diode laser*  
Col de Porte, France (22-24 Novembre 2017)  
*Measurement of atom and ion Velocity Distribution Function by LIF spectroscopy*  
N. Sadeghi, S. Mazouffre (organisateurs)

Atelier Réseau des Plasma Froids *Quelle alimentation électrique pour quel plasma ?*  
Orléans, France (1-3 Avril 2019)  
*Les alimentations pour la propulsion spatiale électrique*

[21]

### 3 CONFÉRENCES GRAND-PUBLIC

*Les voyages interplanétaires de demain*  
Fêtes de la Science, 16 octobre 2005, Laboratoire d'Aérothermique

*Voyager vers Mars et au-delà. Les moteurs à plasma pour les missions interplanétaires de demain*  
Fêtes de la Science, 15 octobre 2006, Université d'Orléans

*La propulsion spatiale à plasma*  
Muséum des Sciences Naturelles d'Orléans, 28 novembre 2006

*La propulsion spatiale électrique : Tour d'horizon et perspectives*  
Observatoire des Sciences de l'Univers de la région Centre, Orléans  
14 janvier 2014

*Evasion Spatiale – Objectif Mars. Et après ?*

Novotel d'Orléans La Source, Réunion annuelle des sociétaires du CA Centre-Loire,  
4 décembre 2015

*Explorons l'Univers avec la propulsion ionique*

Palais de la Découverte, Paris

Mars, Avril 2016

*Le défi du voyage vers les étoiles*

Rencontres du Ciel et de l'Espace, 11ème édition

Cité des sciences et de l'industrie, Paris

1<sup>er</sup> novembre 2018