

PUBLICATIONS

1 JOURNAUX A COMITE DE LECTURE

- 1 *Anomalous atomic hydrogen shock wave pattern in a supersonic plasma jet.*
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- 11** *Absolute density measurements of the plasma activated catalitic production of ammonia.*
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- 27** *Xe⁺ ion transport in the crossed-field discharge of a 5 kW-class Hall effect thruster.*
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- 42** *Measurement of plasma parameters in the far-field plume of a Hall effect thruster.*
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- 59** *Indirect determination of the electric field in plasma discharges using LIF spectroscopy*
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- 80** *Anode position influence on discharge modes of a LaB₆ cathode in diode configuration*
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- 82** *Electron energy distribution function in a low-power Hall thruster discharge and near-field plume*
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- 83** *Performance comparison between standard and magnetically shielded 200 W Hall thrusters with BN-SiO₂ and graphite channel walls*
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- 85** *Prospects and physical mechanisms for photonic space propulsion*
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- 86** *Mars colonization: Beyond getting there*
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- 89** *Space Exploration – Mars Colonization: Beyond Getting There*
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- 92** *Perspectives, frontiers and new horizons for plasma-based space electric propulsion*
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- 94** *Collisionless electron cooling in a plasma thruster plume: experimental validation of a kinetic model*
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- 96** *Electron properties of an emissive cathode: analysis with incoherent Thomson scattering, fluid simulations and Langmuir probe measurements*
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- 97** *Direct experimental comparison of krypton and xenon discharge properties in the magnetic nozzle of a helicon plasma source*
Alfio E. Vinci, S. Mazouffre
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- 98** *Optimization of a Faraday cup collimator for electric propulsion device beam study: Case of a Hall thruster*
V. Hugonnaud, S. Mazouffre,
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2 CHAPITRES D'OUVRAGES SCIENTIFIQUES

- 1** *Transport of neutral atomic hydrogen in a supersonic plasma jet.*
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10 *Propulsion électrique pour les systèmes spatiaux*

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

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12 ESA Roadmaps

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Anomalous electron transport

Workshop

NASA – JPL, Pasadena, CA, 8 – 11 Sept. 2015 [\[Invited Speaker\]](#)

Novel architecture for an ion-ion plasma thruster

5th 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

52nd 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

1st 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

2nd 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

3rd 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

4th MicroPropulsion and CubeSats Workshop
Pékin, Chine, 8 – 11 May 2019 [\[Invited Speaker\]](#)

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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 LaB₆ 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

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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-H₂ 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 (organisateur)

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 (organisateur)

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

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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^{er} novembre 2018