

Workshop on Infrared Plasma Spectroscopy

Scientific Schedule

Oral Presentations

Plenary Session I (15.06. – 09:45...11:45)

PT I (09:45...10:30)

Plasmas Diagnostics by Laser Spectroscopy and Artifacts

Nader Sadeghi

Laboratoire de Spectrométrie Physique, Université Joseph Fourier - Grenoble & CNRS, France

PT II (11:00...11:45)

Infrared Diode Laser Spectroscopy of Transient Species Produced by UV-Laser Photolysis

Keiichi Tanaka

Department of Chemistry, Kyushu University, Fukuoka 812-8581 Japan

Session I (15.06. – 11:45...12:30)

T I (11:45...12:05)

Time resolved measurements of the C₂H₂ decay in a single plasma pulse: influence of a porous semiconductor surface

Olivier Guaitella¹, Frederic Thevenet¹, Gabi Daniel Stancu², Jürgen Roepcke² and Antoine Rousseau¹

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T II (12:05...12:25)

Formation of Molecules by Plasma-Surface Interactions

Jean-Pierre van Helden, Goeksel Yagci, Rens Zijlmans, Daan Schram and Richard Engeln

Eindhoven University of Technology, Eindhoven, The Netherlands

Plenary Session II (16.06. – 09:00...10:30)

PT III (09:00...09:45)

MIR Spectroscopic Techniques from Basic Research to Industrial Applications

¹G.D. Stancu, ¹N. Lang, ²M. Reinicke, ³A. Steinbach, ³S. Wege, ³S. Barth, ⁴P.B. Davies and ¹J. Röpcke

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PT IV (09:45...10:30)

TDLAS Measurements of the Rotational Temperature of CF₂ in a Fluorocarbon RF Discharge

Onno Gabriel

Group Equilibrium and Transport in Plasmas, Department of Applied Physics, Eindhoven University of Technology, Eindhoven, The Netherlands

Sergey Stepanov, Milena Pfafferott and Jürgen Meichsner

Institute of Physics, University of Greifswald, Domstrasse 10a, D-17498, Greifswald, Germany

Session II (16.06. – 11:00...12:30)

T III (11:00...11:20)

High Resolution Infrared Spectroscopy of Ionic Complexes in a Supersonic Planar Plasma Expansion

Harold Linnartz

Sackler Laboratory for Astrophysics, Leiden Observatory, Postbus 9513, NL 2300 RA Leiden, Netherlands

T IV (11:20...11:40)

Infrared diode laser absorption spectroscopy for measurement of fluorocarbon radicals in 60MHz capacitively coupled etching plasma process

Masaru Hori

Nagoya University, Furo-cho, Chikusa-ku, Nagoya, Aichi, Japan

T V (11:40...12:00)

Application of a quantum cascade laser for time- and spatially-resolved diagnosis of microwave activated hydrocarbon/H₂/Ar gas mixtures used for diamond chemical vapour deposition

Jie Ma, Jonathan J. Henney, Andrew Cheesman, James A. Smith, Michael N.R. Ashfold,
School of Chemistry, University of Bristol, Bristol, United Kingdom BS8 1TS
Stephen Wright, Nigel Langford and Geoffrey Duxbury
Department of Physics, University of Strathclyde, John Anderson Building, 107
Rottenrow, Glasgow, United Kingdom G4 0NG

Poster Presentations

(15.06. – 16:00...18:00)

FTIR spectroscopic diagnostics of cold reactive plasmas generated in hollow cathode discharges

Isabel Tanarro¹, Concepción Domingo¹, Marco Castillo¹, Teresa de los Arcos², Maria del Mar Sanz³, Víctor J. Herrero¹

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Time resolved measurements of the C₂H₂ decay in a single plasma pulse: influence of a porous semiconductor surface

Olivier Guaitella¹, Frederic Thevenet¹, Gabi Daniel Stancu², Jürgen Roepcke² and Antoine Rousseau¹

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Dynamic of NO production in a single plasma pulse experiment measured by infrared laser absorption spectroscopy

Lina Gatilova¹, Yury Ionikh², Stephan Welzel³, Jürgen Roepcke³ and Antoine Rousseau¹

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²St. Petersburg State University, Faculty of Physics, 198904 St. Petersburg, Russia

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Molecule synthesis in an Ar-CH₄-O₂-N₂ microwave plasma

R A B Zijlmans¹, O Gabriel¹, S Welzel², R Engeln¹ and D C Schram, D C¹

¹ Technische Universiteit Eindhoven, Eindhoven, the Netherlands

² Institut für Niedertemperatur-Plasmaphysik, Greifswald, Germany

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Formation of Molecules by Plasma-Surface Interactions

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Eindhoven University of Technology, Eindhoven, The Netherlands

TDLAS Measurements of the Rotational Temperature of CF₂ in a Fluorocarbon RF Discharge

Onno Gabriel

Group Equilibrium and Transport in Plasmas, Department of Applied Physics, Eindhoven University of Technology, Eindhoven, The Netherlands

Sergey Stepanov, Milena Pfafferott and Jürgen Meichsner

Institute of Physics, University of Greifswald, Domstrasse 10a, D-17498, Greifswald, Germany

IR spectroscopic study of C₂F₄ molecule by means of TDLAS

Milena Pfafferott¹, Onno Gabriel², Sergey Stepanov¹ and Jürgen Meichsner¹

¹*Institute of Physics, University of Greifswald, D-17489 Greifswald, Domstr. 10a, Germany*

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Interrelations between gas phase species and film deposition in fluorocarbon rf plasmas

Jürgen Meichsner¹, Onno Gabriel² and Sergey Stepanov¹

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²*current address: Institute of Applied Physics, Eindhoven University of Technology, The Netherlands*

Application of a quantum cascade laser for time- and spatially-resolved diagnosis of microwave activated hydrocarbon/H₂/Ar gas mixtures used for diamond chemical vapour deposition

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Stephen Wright, Nigel Langford and Geoffrey Duxbury

Department of Physics, University of Strathclyde, John Anderson Building, 107 Rottenrow, Glasgow, United Kingdom G4 0NG

Investigations of reaction kinetics in CH₄/O₂ rf discharges by means of tunable diode laser absorption spectroscopy and numerical analysis

Ivonne Möller, Anna Serdyuchenko and Henning Soltwisch

Ruhr University Bochum, Bochum, Germany

Plasmas Diagnostics by Laser Spectroscopy and Artifacts

Nader Sadeghi

Laboratoire de Spectrométrie Physique, Université Joseph Fourier - Grenoble & CNRS, France

Hydrocarbon consumption in a radiofrequency discharge investigated by means of tuneable Infrared diode laser absorption spectroscopy

Vladimir Sushkov¹, Mario Hannemann², Jürgen Röpcke² and Rainer Hippler¹

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Infrared Diode Laser Spectroscopy of Transient Species Produced by UV-Laser Photolysis

Keiichi Tanaka

Department of Chemistry, Kyushu University, Fukuoka 812-8581 Japan

On the Application of Infrared Quantum Cascade Laser-Absorption Spectroscopy for Plasma Process and Trace Gas Monitoring

S. Glitsch, F. Hempel, M. Hübner, N. Lang, U. Macherius, H. Pridöhl, J. Röpcke, S. Saß, G.D. Stancu, K.-D. Weltmann, S. Welzel, H. Zimmermann

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Analysis of complex infrared spectra for absolute concentration measurements by TDLAS

C. Harward¹, F. Hempel², J. Röpcke², H. Zimmermann²

Nottoway Scientific Consulting Corporation, Nottoway, VA 23955, USA

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Side effects in using quantum cascade lasers for absorption spectroscopy

S. Welzel¹, M. Hübner¹, L. Gatilova² and J. Röpcke¹

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Infrared diode laser absorption spectroscopy for measurement of fluorocarbon radicals in 60MHz capacitively coupled etching plasma process

Masaru Hori

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⁴Department of Chemistry, University of Cambridge, Lensfield Rd, CB2 1EW, Cambridge, U.K.

Infrared Photodetector for Plasma Spectroscopy

Jozef Piotrowski

VIGO System S.A., Warsaw, Poland

Detection of metastable Xe-atoms in the cathode region of He-Xe hot electrode discharges by external-cavity diode laser absorption spectroscopy

Hartmut Lange and Jörn Winter

INP, Greifswald, Germany

Fiber optic solutions for broad spectral range: 0.2-18 μ m

V. Artyushenko, C. Wojciechowski

A.R.T. Photonics GmbH, Berlin