Science and Technology of Light Sources

Newsletter Issue 01

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Newsletter Contents

Dear colleagues

It is with great pleasure that I send you the first issue of the electronic newsletter focusing on the *Science and Technology of Light Sources*. The newsletter has been registered with the International Catalogue of Periodical Publications in Paris and has its own ISSN number.

This newsletter was created thanks to the contributions of numerous scientists, engineers and researchers in the field of Light Sources that responded with enthusiasm and motivation about this new project. I would like to thank all those who wrote even to just share their enthusiasm and agreement. This is a new method for scientists and researchers in a field to communicate and keep up to date in a time and cost effective way.

I certainly hope this issue will be useful in your hands and that more contributions will come in the coming weeks and months so that a second and improved issue will come together.

The newsletter has been structured to a certain extend according to the class or family of light sources each publication deals with.

The reader will see sections on LEDs, low and high pressure discharge lamps, a special section on excimer lamps and their applications and finally a more general section that includes diagnostic studies. Separate sections for patents and published books are also included.

The sources are quite a few and from different countries and they include scientific journals, conference proceedings, patent offices, book publications etc.

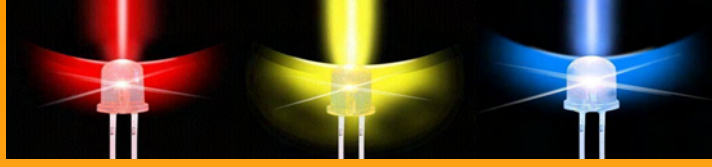
Along with your contributions about work you are undertaking and publishing presently or in the near future, your comments and feedback will also be valuable. Ideas for improvement and observations are needed in any project.

I sincerely want to thank each one of you once again personally and on behalf of the community for your support and for helping this project realize.

Best regards

Spiros Kitsinelis

September 2008



LIGHT EMITTING DIODES

Remote phosphor LED modules for general illumination – towards 200 lm/W general lighting LED light sources
Christoph Hoelen, Huub Borel, Jan de Graaf, Matthijs Keuper, Martijn Lankhorst, Claudia Mutter, Lars Waumans, and René Wegh
SPIE Optics & Photonics, in the 8th International Conference on Solid State Lighting (SPIE Proceedings Vol. 7058)

White light-emitting diodes (LEDs) using (oxy) nitride phosphors
R-J Xie, N Hirosaki, K Sakuma and N Kimura
Journal of Physics D: Applied Physics, Volume 41, Number 14, 21 July 2008

Effective Illuminance Improvement of a Light Source by Using Pulse Modulation and Its Psychophysical Effect on the Human Eye
Masafumi JINNO, Keiji MORITA, Yudai TOMITA, Yukinobu TODA and Hideki MOTOMURA
Journal of Light and Visual Environment, Vol.32, No.2 pp.161-169 (2008)

Beyond the Physical Limit : Energy Saving Lighting and Illumination by Using Repetitive Intense and Fast Pulsed Light Sources and the Effect on Human Eye
Masafumi JINNO, Keiji MORITA, Yudai TOMITA, Yukinobu TODA and Hideki MOTOMURA
Journal of Light and Visual Environment, Vol.32, No.2 pp.170-176 (2008)

Dynamic Colour Point Simulation of OLEDs
Jacobs Joep
Philips Research Laboratory, Germany, session 3 – LED, IAS3p4 of the 2008 IEEE Industry Applications Society Annual Meeting

A simple digital current controller for solid-state lighting
J. Jacobs, S. Jie and D. Hente
Philips Research Laboratory, Germany, P403, IEEE 39thPower Electronics Specialists Conference, June 15-19, 2008

Study on methodology of LED's luminous flux measurement with integrating sphere
Mu-Qing Liu, Xiao-Li Zhou, Wen-Yi Li, Yu-Yang Chen and Wan-Lu Zhang
Journal of Physics D: Applied Physics, Volume 41, Number 14, 21 July 2008

FLUORESCENT LAMPS

Mercury dosing solutions for fluorescent lamps
A Corazza and C Boffito
Journal of Physics D: Applied Physics, Volume 41, Number 14, 21 July 2008

Study and optimization of mercury free fluorescent signs
S. Point, E. Robert, S. Dozias, C. Cachoncinlle, R. Viladrosa and J.M. Pouvesle
Journal of optoelectronics and advanced materials, Vol. 10, No. 8, August 2008, p. 1922-1926

Power balance in the positive column of narrow bore (T2) fluorescent lamps
Qiuyi Han, Hao Jiang, Shaolong Zhu, Shanduan Zhang, Graeme Lister and Tzvetelina Petrova
Journal of Physics D: Applied Physics, Volume 41, Number 14, 21 July 2008

Interpretation of the external band technique for cathode fall measurements of fluorescent lamps
R Garner
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Dynamics of plasma–electrode coupling in fluorescent lamp discharges
R Garner
Journal of Physics D: Applied Physics, Volume 41, Number 14, 21 July 2008

Propagation of ionization waves during ignition of fluorescent lamps
R Langer, R Garner, A Hilscher, R Tidecks and S Horn
Journal of Physics D: Applied Physics, Volume 41, Number 14, 21 July 2008

HIGH PRESSURE LAMPS

Understanding and modelling plasma–electrode interaction in high-pressure arc discharges: a review
M S Benilov,
Journal of Physics D: Applied Physics, Volume 41, Number 14, 21 July 2008

Development of the arc attachment at HID lamp electrodes in the range from low to RF-frequencies
J Reinelt, O Langenscheidt, M Westermeier, P Awakowicz and J Mentel
Journal of Physics D: Applied Physics, Volume 41, Number 14, 21 July 2008

Stability of diffuse mode cathode arc attachment in ac operated high-intensity discharge lamps
A L Lenef
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Investigation of the gas-phase emitter effect of dysprosium in ceramic metal halide lamps
O Langenscheidt, M Westermeier, J Reinelt, J Mentel and P Awakowicz
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Ac electrode diagnostics in AC-operated metal halide lamps
G M J F Luijks, H A van Esveld, S Nijdam and P A M Weerdesteijn
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Dysprosium oxide ceramic arc tube for HID lamps
G C Wei, W P Lapatovich, J Browne and R Snellgrove
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Transport phenomena of aluminium oxide in metal halide lamps
S Fischer, U Niemann and T Markus
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Estimates of molecular absorption cross-sections in mercury plasmas at very high pressures using self-reversed line diagnostics
D O Wharmby
Journal of Physics D: Applied Physics, Volume 41, Number 14, 21 July 2008

A survey of infrared continuum versus line radiation from metal halide lamps
M Kato, M T Herd and J E Lawler
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Quantitative X-ray absorption imaging with a broadband source: application to high-intensity discharge lamps
J J Curry
Journal of Physics D: Applied Physics, Volume 41, Number 14, 21 July 2008

X-ray absorption tomography of a high-pressure metal-halide lamp with a bent arc due to Lorentz forces
N Denisova, M Haverlag, E J Ridderhof, T Nimalasuriya and J J A M van der Mullen
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X-ray absorption of the Hg distribution in a commercial metal-halide lamp
T Nimalasuriya, X Zhu, E J Ridderhof, M L Beks, M Haverlag, N Denisova, W W Stoffels and J J A M van der Mullen
Journal of Physics D: Applied Physics, Volume 41, Number 14, 21 July 2008

Modelling of fluid-mechanical arc instability in pure-mercury HID lamps
Thomas D Dreeben,
Journal of Physics D: Applied Physics, Volume 41, Number 14, 21 July 2008

Metal-halide lamps in micro-gravity: experiment and model
T Nimalasuriya, M L Beks, A J Flikweert, M Haverlag, W W Stoffels, G M W Kroesen and J J A M van der Mullen
Journal of Physics D: Applied Physics, Volume 41, Number 14, 21 July 2008

Competition between convection and diffusion in a metal halide lamp, investigated by numerical simulations and imaging laser absorption spectroscopy
M L Beks, A J Flikweert, T Nimalasuriya, W W Stoffels and J J A M van der Mullen
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Application of an antenna excited high pressure microwave discharge to compact discharge lamps
M Kando, T Fukaya, Y Ohishi, T Mizojiri, Y Morimoto, M Shido and T Serita
Journal of Physics D: Applied Physics, Volume 41, Number 14, 21 July 2008

Ignition of mercury-free high intensity discharge lamps
M Czichy, T Hartmann, J Mentel and P Awakowicz
Journal of Physics D: Applied Physics, Volume 41, Number 14, 21 July 2008

Pulse, DC and AC breakdown in high pressure gas discharge lamps
J Beckers, F Manders, P C H Aben, W W Stoffels and M Haverlag
Journal of Physics D: Applied Physics, Volume 41, Number 14, 21 July 2008

EXCILAMPS and APPLICATIONS

High pulse radiating power excilamps
V.F. Tarasenko, M.V. Erofeev, M.I. Lomaev and D.V. Rybka
Proc. of conference “ICOPS 2008” The 35th IEEE International Conference on Plasma Science, 2008, June 15-19, Karlsruhe, Germany, 7C7, P.106

Comparison of bactericidal action of XeBr-excilamp and conventional low-pressure mercury lamp
Lavrent’eva L.V., Velichevskaya K.Yu., Sosnin E.A. and Avdeev S.M.
Mateiály IV Mezinarodni vědesko-paktiká conference «Efectivní nástroeje moderních věd – 2008». – Díl 14. Biologické vědy. – Praha: Publishing House «Education and Science» s.r.o., 2008, P. 21–23

Barrier-discharge-excited coaxial excilamps with enhanced pulse energy
Panchenko A.N. and Tarasenko V.F.
Quantum Electronics, 2008, V.38, No.1, P. 88–91
http://www.iop.org/EJ/abstract/1063-7818/38/1/A16

Comparative study of UV radiation action of XeBr - excilamp and conventional low-pressure mercury lamp on bacteria
Avdeev S.M., Sosnin E.A., Velichevskaya K.Yu. and Lavrent’eva L.V.
Proc. SPIE (VIII International Conference "Atomic and Molecular Pulsed Lasers", Tomsk online publication in 2008, V.6938, P.693813

Degradation of chlorophenols in aqueous media using UV XeBr excilamp in a flow reactor
Matafonova G.G., Christofi N., Batoev V.B. and Sosnin E.A.
Chemosphere, 2008, V.70, P.1124–1127

A new method of chlorophenols decomposition based on UV-irradiation by XeBr-excilamp and their subsequent biodegradation
Sosnin E.A., Matafonova G.G., Christofi N. and Batoev V.B.
Proc. SPIE (VIII International Conference "Atomic and Molecular Pulsed Lasers", Tomsk), online publication in 2008, V.6938, P. 693815

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Sosnin E.A., Sokolova I.V. and Tarasenko V.F.
Photochemistry Research Progress (Edited by A. Sanchez and S.J. Gutierrez), Nova Science Publishers, 2008, ISBN 978-1-60456-568-3
https://www.novapublishers.com/catalog/product_info.php?products_id=7189

Study of a volume discharge in inert-gas halides without pre-ionisation
M.V. Erofeev and V.F. Tarasenko
Quantum Electronics, 2008, V. 38 (4), pp. 401 – 403

Two-Band Emission Source Based on a Three-Barrier KrCl–XeBr Excimer Lamp
S.M. Avdeev, É.A. Sosnin, V.S. Skakun, V.F. Tarasenko and D.V. Shitts
Technical Physics Letters, 2008, Vol. 34, No. 9, pp. 725–727

Volume discharges under elevated pressure and their application for the creation of pulsed lasers and excilamps
V.F. Tarasenko
Proc. of International Conference “Laser Optics 2008”, 2008, June 23-28, St. Petersburg, Russia, ThR-22, P.36

Improving the efficiency of a fluorescent Xe dielectric barrier light source using short pulse excitation
Sz Beleznai et al
Journal of Physics D: Applied Physics, 41, 115202 (6pp), 2008

New Modulated Driving Signal for Efficient Excitation of DBD Discharges
Beleznai Sz., Richter P. and Balázs L.,
Conference paper, HAKONE XI Oleron Island September 7-12, 2008

This first issue contains publications (print or online) and conference presentations that took place during 2008 according to the launch announcement. You can support this project by sending your work in titles that includes any kind of publications and announcements. You can also forward this newsletter to your colleagues and ask them to send their email addresses if they want to be added on the email list. Optical material such as research related or event photographs are welcomed. Letters and any other messages related to the field are also welcomed as it is intended to create a Light Sources newsletter with a wide range of topics. Any questions, suggestions or requests can be sent to the project coordinator at skitsinelis@ath.forthnet.gr

OTHER

Basic concepts of temperature determination from self-reversed spectral lines
H Schneidenbach and St Franke
Journal of Physics D: Applied Physics, Volume 41, Number 14, 21 July 2008

Broadening constants of mercury lines as determined from experimental side-on spectra
M Wendt and S Franke
Journal of Physics D: Applied Physics, Volume 41, Number 14, 21 July 2008

Reactive Non-thermal Plasmas - Chemical Quasi-equilibria, Similarity Principles and Macroscopic Kinetics
Hans-Erich Wagner
Vol. 1, pages 385-409
Low Temperature Plasmas – Fundamentals, Technologies and Techniques
Editors: R. Hippler, H. Kersten, M. Schmidt, K.H. Schoenbach
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Cross -Correlation Emission Spectroscopy Applied to Non-equilibrium Plasma Diagnostics
Hans Wagner, Kirill Vadimovich Kozlov and Ronny Brandenburg
Vol. 1, pages 271-306
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Low-Temperature Plasmas for Polymer Surface Modification
J. Meichsner
Vol. 2, pages 739-756
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Evolved Gas Analysis in Modelling Studies of Pre-Sintering Step in Fabrication of Ceramic Alumina Specimens
Janos Madarasz, Peter Pal Varga and Gyorgy Pokol
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Rebirth of the Incandescent Lamp - Future Lamp Technologies
Subba Rao Mekala
2008 International Conference on Tungsten, Refractory & Hardmaterials VII, World Congress on Powder Metallurgy & Particulate Materials, June 8-12, 2008, Washington D.C., USA

Formation of stationary and transient spots on thermionic cathodes and its prevention
P G C Almeida, M S Benilov and M D Cunha
Journal of Physics D: Applied Physics, Volume 41, Number 14, 21 July 2008

2D-Spatially Resolved Cross-Correlation Spectroscopy of the Microdischarge Development in Barrier Discharges in Air
R. Brandenburg, T. Hoder and H. E. Wagner
IEEE, June 2008

Theoretical and experimental study of some basic processes in He-TII and Ne-TII plasma - asymmetric charge transfer, penning ionization and diffusion
K A Temelkov, N K Vuchkov, R P Ekov and N V Sabotinov
Journal of Physics: Conference Series, 012001 Volume 113, 2008

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T Hoder, M Sira, K V Kozlov and H-E Wagner
Journal of Physics D: Applied Physics, Volume 41, (2008), 035212 (9pp)

Determination of characteristic constants for some basic processes in plasma – diffusion, Penning ionization, asymmetric charge transfer
K A Temelkov, N K Vuchkov, R P Ekov and N V Sabotinov
Journal of Physics D: Applied Physics, Volume 41, (2008), 105203 (7pp)

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S Nemschokmichal, K Dittmann and J Meichner
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Use of a KrCl - excilamp as a device for non-destructive identification of diamonds and its imitations
Avdeev S.M., Sosnin E.A., Tarasenko V.F. and Schitz D.V.
RU Patent 71166; Appl. No: 2007141229/22; Filed: 06.11.2007; Published 27.02.2008 in Russian Invention Bulletin No 6

Ultraviolet radiation source: **Application of a special nanolayer on excilamp surfaces to reduce ozone formation**
Sosnin E.A., Tarasenko V.F., Avdeev S.M. and Chernov E.B.
RU Patent 2321919; Appl. No.: 2006138756/09; Filed: 02.11.2006; Published 10.04.2008 in Russian Invention Bulletin No 10

Filament Alignment Capsule for an Electric Lamp
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T. Markus and U. Niemann
The SGTE Casebook, Second Edition, edited by K. Hack, Woodhead Publishing Ltd, Cambridge, England, ISBN 978-1-84569-215-5, 2008

Low Temperature Plasmas – Fundamentals, Technologies and Techniques
Editors: R. Hippler, H. Kersten, M. Schmidt, K.H. Schoenbach
Überarbeitete und erweiterte Auflage, WILEY-VCH Verlag GmbH & Co. KgaA, Weinheim, 2008

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