Digital Olfaction Society

2nd World Congress of

Digital Olfaction Society 2014

December 8-9, 2014
Tokyo Institute of Technology, Japan

"…The DOS 2014 Challenge is to Record & Digitalize Odors…"

DOS Demonstrations 2014 Program

Scientific Program

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…The idea is to create devices which can capture odors, turn them into digital data so as to transmit them everywhere in the world …

Dear Colleagues and Friends,

Nowadays, visual and auditory information can be digitally captured, stored and reproduced. We are in touch with that information every day. If another important sense such as olfaction is digitally available, our lifestyle might be changed. Digital Olfaction Society held the first congress on digital olfaction in 2013 in Berlin, Germany. We had demonstrations of olfactory displays in addition to oral presentations. People were excited about those demos since they enjoyed mysterious experience in Berlin. We should continue our effort to have digital olfaction in our daily life. Thus, 2nd Digital Olfaction Society World Congress will be held in Tokyo in December 8-9, 2014.

The aim of the Second Digital Olfaction Society World Congress 2014 is to discuss:
- The advances of digital olfaction Research & Development
- The practical applications of digital olfaction
- The impact of these applications on our life and lifestyle

Digital Olfaction Society World Congress 2014 will highlight:
- The interdisciplinary sciences related to Olfaction and Digital olfaction.
- The way in which we can transfer the concrete breakthroughs of Research & Development towards
- industrial applications concerned by digital olfaction.
- How to design and extend the applications of digital smell technologies to everyday life.

Why attend DOS World Congress 2014?

People who are interested in digital olfaction are invited to join this congress to gather the information of recent progress, share it with others and spread the information all over the world. Moreover, participants are encouraged to show demonstrations as well as presentations since we can share the experience of digital olfaction together. The goal of this congress is to establish the international link related to digital olfaction among a variety of fields such as biology, medicine, computer science, electronics, chemistry, mechanical engineering, psychology, art etc.

Who will attend DOS World Congress 2014?

People from industries as well as academics are welcome.

The conference will gather international researchers and academics, R&D departments in link with all the field of digital olfaction, chemistry, mathematics, physics, biochemistry, electronics, engineering, computer science, food and cosmetic industries, olfactory intelligent systems companies, marketing

managers, investors and all other stakeholders in olfaction and digital olfaction industries in order to answer these questions.

DOS 2014 Chairmen

Marvin Edeas, Chairman of Digital Olfaction Society, France
Takamichi Nakamoto, Tokyo Institute of Technology, Department of Physical Electronics, Japan

DOS 2014 Scientific Committee

Hossam Haick, Technion, Israel Institute of Technology, Israel
Yanxia Hou-Broutin, CEA-Grenoble, France
Baranidharan Raman, Washington University in St-Louis, United States
Kazunari Touhara, University of Tokyo, Japan
Noam Sobel, Weizman Institute of Sciences, Israel
Genki Yoshikawa, National Institute for Material Sciences, Japan

Local Organising Committee

Hyung-Gi Byun, Kangwon National University, Korea
Weileun Fang, National Tsing Hua University, Taiwan
Hiroshi Ishida, Tokyo University of Agriculture & Engineering, Japan
Ryohei Kanzaki, University of Tokyo, Japan
Dongwook Kim, Aromajoin, Japan
Junichi Kita, Shimadzu, Japan
Tai Hyun Park, Seoul National University, Korea
Kiyoshi Toko, Kyushu University, Japan
Akira Tomono, Tokai University, Japan
Yasuyuki Yanagida, Meijo University, Japan

Among hot topics presented at the Digital Olfaction Society Congress 2014

- Devices to capture odors
- Odors turned into digital data
- Restitution of odors by the transmission of these data
- Artificial olfaction and biologically-inspired models
- New Generation of Sensors & E-nose
- High Smell Technologies as electronic noses, neural circuits in olfactory systems, artificial intelligence olfaction systems
- Biosensor systems, software program, chemical engineering, Telecommunication
- Environmental control
- Biomedical applications in olfactory treatments and diagnosis
- Translational Research in Digital Olfaction
- Cancer & Olfaction: from Dogs to Digital Olfaction
- Robotics & Digital Olfaction
- Olfactory Display & its Applications
- Odor Sensing
- The powerful of Olfactive Markers

Call for Innovations and Demonstrations for Digital Olfaction Society World Congress 2014

The Scientific Committee will invite all industries to present their innovations and products in the digital olfaction world:
- Digital Scent Media: Scented SMS, e-mail, websites, USB flash driver, CD, DVD, scented-print
- Digital olfaction at the service of Human Health: Pattern mimicking the sniffing dogs, e-aromachology, nursing-homes, psychiatric hospitals, smell icons for blind people, olfactory diagnosis

- Formation and Olfactory Memory : Class-rooms, cooking shows
- Olfactory Marketing & Neuromarketing: Olfactive ads, olfactory packaging, interactive website, QR olfacodes, scented-menu….
- Food Industry : Quality & safety control of food products
- Digital Cosmetology : Own fragrance creation on line, smell-E-market
- Olfaction and Jewelery : Revolutionary watches, alarm-radio, scented brooch
- Olfactory Entertainment : Olfactory 3D movie-theaters, home's gadgets, guided-tour in biology & perfumery museums
- Digital scents at the service of Army: Simulating training systems, detection of danger, perfumes of military attack, explosive detection devices
- Interactive scented games : Odorant teddy, video games
- Housekeeping, Coziness & Safety at home
- Olfaction & Auto industry : Olfactive attention assistance for tired driver
- And many others…

Digital Olfaction Society - Network Session

The Network Session is organized during DOS demonstrations session.

The objective of the Network Session is to provide a platform which brings together stakeholders involved in olfaction and digital olfaction, and especially in the field the valorization of digital olfaction applications and products:
- Food industries
- Cosmetics
- Phone companies
- Car Industries
- Others

We look forward to welcoming you in Tokyo for this particular event.

Pr Marvin Edeas
Chairman of the Digital Olfaction Society Committee & Co-Chairman of Scientific Committee

Pr Takamichi Nakamoto
Co-Chairman of Scientific Committee

DOS 2014 Demonstrations

The Scientific Committee invites all Academic & Industrial Teams to Present the Most Innovative Appliances, Devices, Methods, Ideas … in the Digital Olfaction Field

DOS 2014 Innovation Award

The DOS World Congress will present the most innovative appliances, devices, methods, ideas… that will be judged by a panel of industrial, engineers and members of the press, who delivered the Innovation Award after having had the opportunity to meet and interact with the new equipment.

Program of DOS 2014 Demonstrations

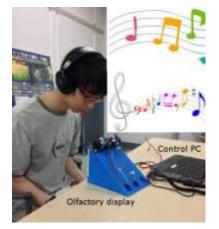The demonstrations sessions will be divided in two parts:

- Before the practical demonstration, we invite each team to present orally their technology and the process of demonstration (5-10 minutes by team).

- During Demonstrations Session, each team will have a dedicated space to show, demonstrate, explain and discuss about his project.

Among Demonstrations selected by the scientific committee:

Smelling Screen: Generating Spatial Odor Distribution as if an Odor Source Had Been Placed onto an LCD Monitor Screen

Haruka Matsukura & Hiroshi Ishida
Tokyo University of Agriculture and Technology, Japan

Cross-modal effect on scent and music

Masaaki Iseki & Takamichi Nakamoto
Precision and Intelligence Laboratory, Tokyo Institute of Technology, Japan

Digital Olfaction with Computer Controlled Odor Blender

Naohiko Maruyama, *ONO-DENKI CO.,LTD.*
Yuji Nozaki, *Tokyo Institute of Technology, Japan*

Aroma Shooter - Instantaneous Scent-Switching Aroma Ejector

Dong Wook Kim & Yasui Aiko
Aromajoin Corporation, Japan

Quantitative measurement of detection threshold and discrimination threshold and furthermore the quantitative measurement of masking effect

Junichi Kita & Ms Yoshimi Sunohara
Shimadzu corporation, Japan

Scent Projector: a method of delivering scented air locally using vortex rings
Daisuke Oishi, Tomoki Kamiya, Takuya Nakano & Yasuyuki Yanagida
Meijo University, Japan

You would like to present your innovative devices during

DOS Demonstrations 2014 ?

We remind you that you can submit your project and abstract by the online form **until October 6.**

To access to the Demonstrations of DOS 2013 World Congress, please visit

www.olfaction-site.com

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Scientific & Demonstrations Program

Day 1 – December 8, 2014

Congress Chairmen: Pr Marvin Edeas & Pr Takamichi Nakamoto

08h00 **Registration Opening**

09h00 **2nd DOS World Congress: Welcome Note by Chairmen**
Pr Marvin Edeas & Pr Takamichi Nakamoto

Olfaction & Predictive Medicine: Perspectives of Digital Olfaction
Chaired by Marvin Edeas & Takamichi Nakamoto

09h05 **Olfaction, Obesity & Skin-Ageing: Strategies to modulate olfactory receptors**
Marvin Edeas, Founder & Chairman of the Digital Olfaction Society Committee, France

09h50 **Digital Olfactory Nanoarrays for Disease Detection from Breath and Skin**
Hossam Haick, Technion, Israel Institute of Technology, Israel

10h45 - Coffee Break & Posters Session

Recent Advances of Digital Olfaction Research & Development
Chaired by Yanxia Hou-Broutin & Genki Yoshikawa

11h15 **A metric approach to olfactory perceptual space**
Noam Sobel, Weizman Institute of Sciences, Israel

11h45 **Odor Processing in Biological and Artificial Olfactory Systems**
Baranidharan Raman, Washington University in St-Louis, United States

12h15 **Nanomechanical gas sensor: Recent Advances & Perspectives**
Genki Yoshikawa, National Institute for Material Sciences, Japan

12h45 - Lunch Break & Posters Session

Afternoon Sessions Chaired by Hossam Haick & Baranidharan Raman

14h00 **Landscapes of Taste: Continuous evolution patterns for electronic-nose-based analysis**
Yanxia Hou-Broutin, CEA-Grenoble, France

Translational Research in Digital Olfaction
Part I - Odor sensing

14h30 **Short Oral Presentations upon Abstracts Submission** (10 + 2 minutes)

Odor classification by using neural network
Sigeru Omatu, Osaka Institute of Technology, Japan

A low cost smart gas sensing system for handheld anti-drunk
Jia-Yin Jhang, National Tsing Hua University, Republic of China

Highly selective nanoporous sensor for human health care manegement
Seimei Shiratori, Keio University, Japan

Qcm sensors with lipopolymers and olfactory receptor-expressing cells for odor sensing in gas/vapor phase
Bartosz Pawel Wyszynski, Tokyo Institute of Technology, Japan

Olfactory dysfunction and its link with subjective visual vertical (SVV) perception in parkinson's disease
Ali Khattab, , Bournemouth University, United Kingdom

15h30 - Coffee Break & Posters Session

Study of the transient response for the prediction of the steady-state for gas sensors based on quartz crystal microbalance
Severino Muñoz-Aguirre, Benemérita Universidad Autónoma de Puebla, Mexico

Development of a small, replaceable sensory chip based on the carbon black-polymer composite materials
Ting-I Chou, National Tsing Hua University, Republic of China

Active airflow generation to aid robotic gas source localization
Ayano Murai, Tokyo University of Agriculture and Technology, Japan

Simulation of sensor network for odor source localization using optimization approach
Yossiri Ariyakul, King Mongkut's Institute of Technology, Thailand

Development of an electronic nose system based on non-continuous surface acoustic wave sensor array
Cheng-Chun Wu, National Tsing Hua University, Taiwan

Development of novel cell-based odorat sensor elements based on insect odorant receptors
Hidefumi Mitsuno, University of Tokyo, Japan

Bioelectronic nose with human-like performance using human olfactory receptors and nanomaterials
Hwi Jin Ko, Seoul National University, Korea, Republic of South Korea

Hand-Held Electronic-Nose with on-line remote classification for digital olfaction
Jesús Lozano, University of Extremadura, Spain

Response prediction of an insect's olfactory receptor neuron by using structural parameters of odorant and self-organizing map
Yuki Harada, Tokyo Institute of Technology, Japan

17h45 **End of First Day**

18h30 **Digital Olfaction Society Dinner**
If you are interested to participate, please register online.

Day 2 – December 9, 2014

Chaired by Hiroshi Ishida & 'Yasuyuki Yanagida

08h55 **Introduction of DOS Second Day**

09h00 **Chemical sensing mechanisms for olfactory receptors**
Kazushige Touhara, University of Tokyo, Japan

Part II - Odor Sensing and Odor Visualization

09h30 **Short Oral Presentations upon Abstracts Submission** (10 + 2 minutes)

Development of molecular recognition materials for bioinspired odor cluster sensing
Chuanjun Liu, Kyushu University, Japan

Bio-sniffer (biochemical gas sensor) with fiber-optic fluorometry for odorless formaldehyde vapor in residential atmosphere
Po Jen Chien, Tokyo medical and dental university, Japan

Odor visualization by multispectral fluorescence imaging and odor feature value analysis
Hirotaka Yoshioka, Kyushu University, Japan

"Scent camera" for real-time imaging of breath (body) ethanol after alcohol drinking
Takahiro Arakawa, Tokyo Medical and Dental University, Japan

10h20 - Coffee Break & Posters Session

Part III – Olfactory Display

10h50 **Short Oral Presentations upon Abstracts Submission** (10 + 2 minutes)

A novel powder based olfactory display
Chang Heng-Chung, Tokyo Institute of Technology, Japan

A programmable, wearable, multi-fragrance olfactory display
Umberto Cugini, Politecnico di Milano, Italy

Study of wearable olfactory display using surface acoustic wave device
Kazuki Hashimoto, Tokyo Institute of Technology, Japan

Application of starbons on olfactory display
Keisuke Tomono, University of York, United Kingdom

Reducing the trailing tail of vortex rings by partial scent filling to improve localization performance of scent delivery
Daisuke Oishi, Meijo University, Japan

Part IV – Olfactory Display & its Applications

Short Oral Presentations upon Abstracts Submission (10 + 2 minutes)

Relationship between scent effects and video content with emotional properties
Sang-Kyun Kim, Myongji University, Republic of South Korea

A study on the influence of odors on the users' evaluation of industrial products in a VR multisensory environment
Monica Bordegoni, Politecnico di Milano, Italy

Difference of olfactory detection threshold between measuring methods by olfactory display using pulse ejection
Shutaro Homma, Keio University, Japan

Digital Olfaction Displaying & Demonstrations
14h00 – 17h30

14h00   Introduction of DOS Demonstrations 2014
Takamichi Nakamoto, Tokyo Institute of Technology, Japan

14h10   General Presentation of Each Demonstrations

Before the practical demonstration, we invite each team to present orally their technology and the process of demonstration (5-10 minutes by team).

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Among Demonstrations presented:

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Quantitative measurement of detection threshold and discrimination threshold and furthermore the quantitative measurement of masking effect
Junichi Kita & Yoshimi Sunohara, Shimadzu Corporation, Japan

Scent Projector: a method of delivering scented air locally using vortex rings
Daisuke Oishi, Tomoki Kamiya, Takuya Nakano & Yasuyuki Yanagida, Meijo University, Japan

15h30 – Coffee Break & Posters Session

17h30   Discussion - Questions / Answers about Digital Olfaction
- *What is most crucial for progressing the field of digital olfaction forward and to keep it as innovative as possible: new advanced materials? New transducers? Algorithms? Product design? Applications?*
- *How lab results in digital olfaction could be translated to commercial production, while passing through all regulatory (tough) roles. An example could be given for the case of the use of digital olfaction as a diagnostic tool for diseases.*

Final Discussion & Concluding Remarks
- *Perspectives & Opportunities*
- *Next strategic step for Digital Olfaction Society*
- *Publication about DOS proceedings in scientific journal or DOS book*

18h30   End of DOS 2014

Program, Registration & Practical Information available on

www.olfaction-site.com