

Conference 7548C
Saturday-Sunday 23-24 January 2010
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Advanced Technology and Instrumentation in Otolaryngology: Lasers, Optics, Radio Frequency, and Related Technology

Conference Chairs: **Brian Jet-Fei Wong**, Univ. of California, Irvine; **Justus F. R. Ilgner**, Univ. Hospital Aachen (Germany)

Program Committee: **James A. Burns**, Massachusetts General Hospital; **Holger Lubatschowski**, Rowiak GmbH (Germany); **Udayan K. Shah**, Nemours/Alfred I. duPont Hospital for Children; **Colin Hopper**, Univ. College London (United Kingdom); **Henricus J. C. M. Sterenberg**, Erasmus Medical Ctr. (Netherlands); **Waseem K. Jerjes**, Univ. College London (United Kingdom)

In conjunction with the



2nd Scientific Meeting of the Head and Neck Optical Diagnostics Society (HNODS)

Support for this Conference was provided by Karl Storz, Imalux, and Lumenis

Saturday 23 January

Introductions and Opening Remarks

Session Chairs: **Brian Jet-Fei Wong**, Univ. of California, Irvine; **Colin Hopper**, Univ. College London Hospitals NHS Foundation Trust (United Kingdom)

Room: TBD Sat. 8:15 to 8:20 am

SESSION 1: Head and Neck Optical Diagnostics: Session 1

Session Chairs: **Colin Hopper**, Univ. College London Hospitals NHS Foundation Trust (United Kingdom); **Adel K. El-Naggar**, The Univ. of Texas M.D. Anderson Cancer Ctr.

Room: TBD Sat. 8:20 am to 12:00 pm

8:20 am: **Our experience with optical diagnostics of the head and neck**, Colin Hopper, Univ. College London Hospitals NHS Foundation Trust (United Kingdom); Waseem K. Jerjes, Tahwinder Upile, Univ. College Hospital (United Kingdom) [7548C-67]

8:40 am: **Wide-field and high-resolution optical imaging for early detection of oral neoplasia**, Mark C. Pierce, Kelsey Rosbach, Darren M. Roblyer, Tim Muldoon, Rice Univ. (United States); Michelle D. Williams, Adel K. El-Naggar, Ann M. Gillenwater, The Univ. of Texas M.D. Anderson Cancer Ctr. (United States); Rebecca R. Richards-Kortum, Rice Univ. (United States) [7548C-68]

9:00 am: **The detection of oral cancer using differential pathlength spectroscopy**, H. J. C. M. Sterenberg, Univ. Medisch Ctr. Rotterdam (Netherlands) [7548C-69]

9:20 am: **Raman spectroscopy of lymph nodes in the head and neck**, Linda Orr, Catherine A. Kendall, Joanne C. Hutchings, Martin Isabelle, John Horsnell, Nicholas Stone, Gloucestershire Royal Hospital (United Kingdom) [7548C-70]

9:40 am: **Design, conduct and challenges of a clinical trial utilizing elastic light scattering spectroscopy in thyroid lesions**, Jennifer E. Rosen, Hyunsuk Suh, Stephanie Lee, Ousama M. Aamar, Irving J. Bigio, Boston Univ. (United States) [7548C-168]

Coffee Break.....10:00 to 10:30 am

10:30 am: **Assessment of suspicious oral lesions using optical coherence tomography**, Zaid Hamdoon, Waseem K. Jerjes, Tahwinder Upile, Univ. College Hospital (United Kingdom); Gordon P. McKenzie, Michelson Diagnostics Ltd. (United Kingdom); Amrita Jay, Gareth J. Thomas, Univ. College Hospital (United Kingdom); Colin Hopper, Univ. College London Hospitals NHS Foundation Trust (United Kingdom) [7548C-72]

10:45 am: **Assessment of tumour resection margins using optical coherence tomography**, Zaid Hamdoon, Waseem K. Jerjes, Tahwinder Upile, Univ. College Hospital (United Kingdom); Gordon P. McKenzie, Michelson Diagnostics Ltd. (United Kingdom); Amrita Jay, Gareth J. Thomas, Univ. College Hospital (United Kingdom); Colin Hopper, Univ. College London Hospitals NHS Foundation Trust (United Kingdom) [7548C-73]

11:00 am: **Quantitative analysis of head and neck resection margins using optical coherence tomography: Imperial-UCL work**, Zaid Hamdoon, Waseem K. Jerjes, Tahwinder Upile, Univ. College Hospital (United Kingdom); Gordon P. McKenzie, Michelson Diagnostics Ltd. (United Kingdom); Amrita Jay, Univ. College Hospital (United Kingdom); Ann Sandison, Imperial College London (United Kingdom); Colin Hopper, Univ. College London Hospitals NHS Foundation Trust (United Kingdom) [7548C-74]

11:20 am: **Real-time volumetric optical coherence tomography OCT imaging with a surgical microscope**, Gereon Hüttmann, Joachim Probst, Univ. zu Lübeck (Germany); Tino Just, Hans W. Pau, Univ. Rostock (Germany); Stefan Oelckers, MÖLLER-WEDEL GmbH (Germany); Dierck Hillmann, Peter Koch, Thorlabs GmbH (Germany); Eva M. Lankenau, Univ. zu Lübeck (Germany) [7548C-75]

11:40 am: **Current Munich status concerning in-vivo optical coherence tomography for differentiating lesions of the upper aerodigestive tract**, Veronika Volgger, Herbert G. Stepp, Ludwig-Maximilians-Univ. München (Germany); Waseem K. Jerjes, Tahwinder Upile, Univ. College Hospital (United Kingdom); Andreas Leunig, Ludwig-Maximilians-Univ. München (Germany); Colin Hopper, Univ. College London Hospital (United Kingdom); Christian S. Betz, Ludwig-Maximilians-Univ. München (Germany) [7548C-174]

Lunch/Exhibition Break.....12:00 to 1:20 pm

SESSION 2: Head and Neck Optical Diagnostics: Session 2

Session Chairs: **Brian Jet-Fei Wong**, Univ. of California, Irvine; **Henricus J. C. M. Sterenborg**, Univ. Medisch Ctr. Rotterdam (Netherlands)

Room: TBD Sat. 1:20 to 6:00 pm

1:20 pm: **Automatic segmentation of clinical OCT images for the determination of epithelial thickness changes in laryngeal lesions**, Henning Wisweh, Laura Martinez Mateu, Laser Zentrum Hannover e.V. (Germany); Marcel Kraft, Kantonsspital Aarau (Switzerland); Alexander Krüger, Holger Lubatschowski, Laser Zentrum Hannover e.V. (Germany) [7548C-76]

1:40 pm: **Ultrahigh-resolution 3D full-field optical coherence microscopy of the pulmonary airways ex vivo**, Linbo Liu, William Oh, Brett E. Bouma, Wellman Ctr. for Photomedicine, Massachusetts General Hospital (United States) and Harvard Medical School (United States); Steven M. Rowe, The Univ. of Alabama at Birmingham (United States); Guillermo J. Tearney, Wellman Ctr. for Photomedicine, Massachusetts General Hospital (United States) and Harvard Medical School (United States) [7548C-77]

2:00 pm: **High-speed three-dimensional imaging of the pulmonary alveoli**, Eman Namati, Harvard Medical School (United States) and Wellman Ctr. for Photomedicine, Massachusetts General Hospital (United States); Carolin Unglert, Harvard Medical School (United States) and Massachusetts General Hospital (United States) and Air Liquide (France); Brett E. Bouma, Guillermo J. Tearney, Harvard Medical School (United States) and Wellman Ctr. for Photomedicine, Massachusetts General Hospital (United States) [7548C-78]

2:20 pm: **Multimodality bronchoscopic imaging of airway abnormalities**, Septimiu D. Murgu M.D., Henri G. Colt, Yeh-Chan Ahn, Matthew Brenner M.D., Univ. of California, Irvine (United States) [7548C-175]

2:40 pm: **Reflectance microscopy techniques for 3D imaging of the alveolar structure**, Carolin Unglert, Wellman Ctr. for Photomedicine, Massachusetts General Hospital (United States) and Harvard Medical School (United States) and Air Liquide R&D Medical Gases (France); Eman Namati, Linbo Liu, Wellman Ctr. for Photomedicine, Massachusetts General Hospital (United States) and Harvard Medical School (United States); Hongki Yoo, Wellman Ctr. for Photomedicine, Massachusetts

General Hospital (United States); Guillermo Tearney, Wellman Ctr. for Photomedicine, Massachusetts General Hospital (United States) and Harvard Medical School (United States) [7548C-79]

3:00 pm: **Three-dimensional microscopy of the human bronchial mucosa**, Melissa J. Suter, Harvard Medical School (United States) and Wellman Ctr. for Photomedicine, Massachusetts General Hospital (United States); David R. Riker, Lahey Clinic Medical Ctr. (United States); Brett E. Bouma, Harvard Medical School (United States) and Wellman Ctr. for Photomedicine, Massachusetts General Hospital (United States); John F. Beamis, Jr., Lahey Clinic Medical Ctr. (United States); Guillermo J. Tearney, Harvard Medical School (United States) and Wellman Ctr. for Photomedicine, Massachusetts General Hospital (United States) [7548C-80]

3:20 pm: **Fiber-based microendoscopic multiphoton imaging**, Gangjun Liu, Beckman Laser Institute and Medical Ctr., Univ. of California, Irvine (United States); Brian J. Wong M.D., Univ. of California, Irvine (United States); Zhongping Chen, Beckman Laser Institute and Medical Ctr., Univ. of California, Irvine (United States) [7548C-167]

Coffee Break.....3:40 to 4:00 pm

4:00 pm: **Endoscopic ICG perfusion imaging for flap transplants: technical development**, Herbert G. Stepp, Ludwig-Maximilians-Univ. München (Germany) [7548C-81]

4:15 pm: **Endoscopic ICG perfusion imaging for flap transplants: clinical results**, Christian S. Betz, Ludwig-Maximilians-Univ. München (Germany) [7548C-82]

4:30 pm: **Utilizing 5-aminolevulinic acid and pulsed dye laser for photodynamic therapy of oral leukoplakia: pilot study**, Gal Shafirstein, Univ. of Arkansas for Medical Sciences (United States); Wolfgang Baeumler, Univ. Clinics Regensburg (Germany); Eric Sigel, Chun-Yang Fan, Emre Vural, B. Stack, James Y. Suen M.D., Univ. of Arkansas for Medical Sciences (United States) [7548C-176]

4:50 pm: **In vivo monitoring of Foscan-mediated photodynamic therapy in clinical head and neck procedures using optical spectroscopy**, Stephen C. Kanick, Univ. Medisch Ctr. Rotterdam (Netherlands); Baris Karakullukcu, Antoni van Leeuwenhoek Hospital, Netherlands Cancer Institute (Netherlands); Robert L. van Veen, Henricus J. C. M. Sterenberg, Univ. Medisch Ctr. Rotterdam (Netherlands); I. Bing, Antoni van Leeuwenhoek Hospital, Netherlands Cancer Institute (Netherlands); Max J. Witjes M.D., Univ. Medical Ctr. Groningen (Netherlands); Arjen Amelink, Dominic J. Robinson, Univ. Medisch Ctr. Rotterdam (Netherlands) [7548C-83]

5:10 pm: **Emerging applications for OCT in the head and neck**, Marc Rubinstein, Jason Kim, William B. Armstrong, Hamid R. Djalilian, Univ. of California, Irvine (United States); Zhongping Chen, Brian J. Wong M.D., Beckman Laser Institute and Medical Ctr., Univ. of California, Irvine (United States) [7548C-177]

5:25 pm: **Measurement of epithelial thickness within the oral cavity using optical coherence tomography (OCT)**, Sven Prestin, Christian S. Betz, Marcel Kraft, State Hospital Aarau (Switzerland) and Ludwig-Maximilian Univ. Hospital München (Germany) [7548C-178]

5:40 pm: **Towards early dental caries detection with OCT and polarized Raman spectroscopy**, Lin-P'ing Choo-Smith, National Research Council Canada (Canada) [7548C-179]

Sunday 24 January

SESSION 3: Nasal Airway and Cartilage Reshaping Technologies

Session Chair: **Brian Jet-Fei Wong**, Univ. of California, Irvine

Room: TBD Sun. 8:00 to 9:40 am

8:00 am: **Feedback controlled laser system for safe and efficient reshaping of nasal cartilage** (*Invited Paper*), Emil Sobol, Alexander Sviridov, Natalia Vorobieva, Institute of Laser and Information Technologies (Russian Federation); Valery Svistushkin, Vladimirskiy Research and Clinical Institute of Moscow Region (Russian Federation) [7548C-84]

8:20 am: **Methods for evaluating changes in cartilage stiffness following electromechanical reshaping**, Amanda Lim, Dmitriy E. Protsenko, Brian J. Wong, Beckman Laser Institute and Medical Ctr. (United States) [7548C-85]

8:35 am: **Using optical coherence tomography to monitor effects of electromechanical reshaping in septal cartilage**, Heather Chen, Univ. of Southern California (United States) and University of California, Irvine (United States); Lingfeng

Yu, Cyrus Manuel, Brian Jet-Fei Wong, University of California, Irvine (United States) [7548C-86]

8:45 am: **Comparison of bend angle measurements in fresh cryopreserved cartilage specimens after electromechanical reshaping**, Koohyar Karimi, Dmitriy Protsenko, Edward Wu, Allen Foulad, Cyrus Manuel, Brian J. Wong M.D., Beckman Laser Institute and Medical Ctr. (United States) [7548C-87]

8:55 am: **Monitoring of electrical current in rabbit and porcine cartilage tissue during electromechanical reshaping**, Cyrus Manuel, Allen Foulad, Dimitry Protsenko, Brian J. Wong, Beckman Laser Institute, Univ. of California, Irvine (United States) [7548C-88]

9:05 am: **Numerical analysis of costal cartilage warping after laser modification**, Allen Foulad, Cyrus Manuel, Brian J. Wong, Beckman Laser Institute, University of California Irvine (United States) [7548C-89]

9:20 am: **A laser device for fusion of nasal mucosa** (*Invited Paper*), Michael C. Larson, Valmiki Sooklal, Jesse McClure, Luke Hooper, Jason Sieber, Univ. of Colorado at Colorado Springs (United States) [7548C-90]

SESSION 4: PDT and Advanced Application of Lasers in the Head and Neck I

Session Chairs: **Justus F. R. Ilgner**, Univ. Hospital Aachen (Germany); **Colin Hopper**, Univ. College London Hospitals NHS Foundation Trust (United Kingdom)

Room: TBDSun. 9:40 am to 12:10 pm

9:40 am: **Ten years of experience with photodynamic therapy of early oral cavity and oropharynx cancers: a retrospective report of 170 patients**, Baris Karakullukcu, Kim van Oudanaarde, Maarten Wildeman, Martin Klop, Bing Tan, Antoni van Leeuwenhoek, The Netherlands Cancer Institute (Netherlands) [7548C-91]

Coffee Break3:10 to 3:40 pm

10:30 am: **The role of photodynamic therapy in the management of oral dysplasia**, Colin Hopper, Univ. College London Hospitals NHS Foundation Trust (United Kingdom); Waseem K. Jerjes, Zaid Hamdoon, Tahwinder Upile, Univ. College Hospital (United Kingdom) [7548C-92]

10:50 am: **Photodynamic therapy of laryngeal cancers** (*Invited Paper*), Merrill A. Biel, Virginia Piper Cancer Institute, Abbott Northwestern Hospital (United States) [7548C-93]

11:10 am: **Ultrasound-guided interstitial photodynamic therapy for deeply seated pathologies: assessment of outcome**, Jonas Osher, Waseem K. Jerjes, Tahwinder Upile, Zaid Hamdoon, Farai Nhembe, Rishi Bhandari, Sorcha Mackay, Priya Shah, Univ. College Hospital (United Kingdom); Charles Alexander Mosse, Univ. College London (United Kingdom); Simon Morley, Univ. College Hospital (United Kingdom); Colin Hopper, Univ. College London Hospitals NHS Foundation Trust (United Kingdom) [7548C-94]

11:30 am: **Photochemical internalization**, Waseem K. Jerjes, Tahwinder Upile, Univ. College Hospital (United Kingdom); Charles A. Mosse, Martin R. Austwick, Univ. College London (United Kingdom); Zaid Hamdoon, Dawn Carnell, Univ. College Hospital (United Kingdom); Kristian Berg, Oslo Univ. Hospital (Norway); Anders Høgset, PCI Biotech AS (Norway); Stephen G. Bown, Colin Hopper, National Medical Laser Ctr. (United Kingdom) [7548C-180]

11:50 am: **Non-invasive measurement of photosensitiser concentration using fluorescence differential path-length spectroscopy: validation for different liposomal formulations of m-THPC: Foscan, Foslip and Fospeg**, S. A. de Visscher, M. J. Witjes, Univ. Medical Ctr. Groningen (Netherlands); S. Kascáková, D. J. Robinson, H. J. C. M. Sterenborg, Univ. Medisch Ctr. Rotterdam (Netherlands); J. L. N. Roodenburg, Univ. Medical Ctr. Groningen (Netherlands); A. Amelink, Univ. Medisch Ctr. Rotterdam (Netherlands) [7548C-184]

Lunch/Exhibition Break12:10 to 1:20 pm

SESSION 5: PDT and Advanced Application of Lasers in the Head and Neck II

Session Chairs: **Justus F. R. Ilgner**, Univ. Hospital Aachen (Germany); **Waseem K. Jerjes**, Univ. College Hospital (United Kingdom)

Room: TBDSun. 1:20 to 6:00 pm

1:20 pm: **Treatment planning for interstitial photodynamic therapy for head and neck cancer**, R. L. P. van Veen, Dominic J. Robinson, Henricus J. C. M. Sterenborg, Univ. Medisch Ctr. Rotterdam (Netherlands); Jan Bonne Aans, Erasmus

MC (Netherlands); I. B. Tan, F. Hoebbers, Het Nederlands Kanker Instituut (Netherlands); Max J. Witjes M.D., Univ. Medisch Ctr. Groningen (Netherlands); P. C. Levendag, Erasmus MC (Netherlands) [7548C-181]

1:40 pm: **Photodynamic therapy as the "last hope" for tongue-based carcinoma**, Waseem K. Jerjes, Tahwinder Upile, Zaid Hamdoon, Farai Nhembe, Rishi Bhandari, Sorcha Mackay, Univ. College Hospital (United Kingdom); Charles Alexander Mosse, Univ. College London (United Kingdom); Simon Morley, Univ. College Hospital (United Kingdom); Colin Hopper, Univ. College London Hospitals NHS Foundation Trust (United Kingdom) [7548C-96]

1:55 pm: **Laser interactive thermal therapy for head and neck lesions**, Gal Shafirstein, Gresham Richter, Lisa Buckmiller, James Y. Suen M.D., Univ. of Arkansas for Medical Sciences (United States) [7548C-182]

2:10 pm: **CO2 laser transoral laser microsurgery of head and neck cancer: lessons learned over ten years**, William B. Armstrong, Univ. of California, Irvine (United States); Marc Rubinstein, Beckman Laser Institute and Medical Ctr., Univ. of California, Irvine (United States) [7548C-169]

2:30 pm: **Femtosecond laser microstructuring and bioactive nanocoating of titanium surfaces in relation to chondrocyte growth**, Justus F. R. Ilgner, Slavomir Biedron, Univ. Hospital Aachen (Germany); Elena Fadeeva, Boris Cichkov, Laser Zentrum Hannover e.V. (Germany); Doris Klee, RWTH Aachen (Germany); Anneke Loos, Eveline Sowa-Soehle, Medizinische Hochschule Hannover (Germany); Martin Westhofen, Univ. Hospital Aachen (Germany) [7548C-99]

2:50 pm: **CO2 laser myringoplasty using a handheld waveguide**, David M. Kaylie, Jason Miller, Duke Univ. Medical Ctr. (United States) [7548C-101]

Coffee Break.....3:10 to 3:40 pm

3:40 pm: **The effect of PDT on H. influenza biofilm in vivo**, Chung-Ku Rhee M.D., So-Young Chang, Phil-Sang Chung M.D., Jae-Yun Jung M.D., Jin-chul Ahn M.D., Myung-Whan Suh, Dankook Univ. Hospital (Korea, Republic of) [7548C-97]

4:00 pm: **Toward endoscopic ultrafast laser microsurgery of vocal folds**, Adela Ben-Yakar, Christopher L. Hoy, W. Neil Everett, The Univ. of Texas at Austin (United States); James Kobler, Massachusetts General Hospital (United States) [7548C-98]

4:20 pm: **Laser hearing aids**, G. I. Wenzel, Medizinische Hochschule Hannover (Germany); Hubert H. Lim, Medizinische Hochschule Hannover (Germany) and Univ. of Minnesota (United States); Kaiyin Zhang, Laser Zentrum Hannover e.V. (Germany); Sven Balster, Medizinische Hochschule Hannover (Germany); Ole Massow, Holger Lubatschowski, Laser Zentrum Hannover e.V. (Germany); Guenter Reuter, Thomas Lenarz, Medizinische Hochschule Hannover (Germany) [7548C-100]

4:40 pm: **An optical coherence tomography study for imaging the round window niche and the promontorium tympani**, Tino Just, Univ. Rostock (Germany); Eva M. Lankenau, Gereon Hüttmann, Univ. zu Lübeck (Germany); Hans W. Pau, Univ. Rostock (Germany) [7548C-71]

5:00 pm: **Lasers, a tool for soft cochleostomies**, Andrew J. Fishman, Feinberg School of Medicine, Northwestern Univ. (United States) and National Naval Medical Ctr. (United States); Laura E. Moreno, Feinberg School of Medicine, Northwestern Univ. (United States); Arnold Rivera, National Naval Medical Ctr. (United States); Claus-Peter Richter, Feinberg School of Medicine, Northwestern Univ. (United States) and National Naval Medical Ctr. (United States) [7548C-171]

5:20 pm: **The use of CO2 laser in tumour resection of the oropharyngeal region**, Tahwinder Upile, Waseem K. Jerjes, Zaid Hamdoon, Univ. College Hospital (United Kingdom); Colin Hopper, Univ. College London Hospitals NHS Foundation Trust (United Kingdom) [7548C-102]

5:40 pm: **CO2 laser ablation of oropharyngeal dysplasia**, Tahwinder Upile, Waseem K. Jerjes, Zaid Hamdoon, Univ. College Hospital (United Kingdom); Colin Hopper, Univ. College London Hospitals NHS Foundation Trust (United Kingdom) [7548C-103]