

## Lasers in Dentistry XXIII

Sunday 29 January 2017

### Conference Sessions At A Glance

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1: OCT in Dental Tissues and Early Caries Detection  
 2: OCT in Oral Tissues and Biofilm, NIR Imaging  
 3: Lasers in Disinfection, Hard Tissue Ablation and Clinical Caries Monitoring  
 4: Lasers in Composite Removal, Pulp Vitality Measurements, Bond Strength and Acid Resistance  
 Posters-Sunday

### Important Dates

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Abstract Due:  
18 July 2016  
 Author Notification:  
26 September 2016  
 Manuscript Due Date:  
3 January 2017

### Conference Committee

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#### Conference Chairs

[Peter Rechmann](#), Univ. of California, San Francisco (United States)  
[Daniel Fried](#), Univ. of California, San Francisco (United States)

#### Program Committee

[Gregory B. Altshuler](#), Palomar Medical Technologies, Inc. (United States)  
[Tatjana Dostálová](#), Charles Univ. in Prague (Czech Republic)  
[Thomas Ertl](#), Univ. Stuttgart (Germany)

#### Program Committee continued...

[David M. Harris](#), Bio-Medical Consultants, Inc. (United States)  
[Jörg Meister](#), Universitätsklinikum Bonn (Germany)  
[Eric J. Seibel](#), Univ. of Washington (United States)

### SUNDAY 29 JANUARY

[Show All Abstracts](#)

## Session 1: OCT in Dental Tissues and Early Caries Detection

Sunday 29 January 2017

8:50 AM - 10:10 AM

Location: Room 2018 (West Level 2)

 Session Chair: [Peter Rechmann](#), Univ. of California, San Francisco (United States)

#### Assessment of dental tissues and restorations using ultra-high resolution polarization-sensitive spectral-domain OCT

Paper 10044-1

Time: 8:50 AM - 9:10 AM

Author(s): [Richard L. Blackmon](#), The Univ. of North Carolina at Chapel Hill (United States); [Adalberto B. Vasconcellos](#), Univ. Federal Fluminense (Brazil); [Alex J. Delgado](#), Univ. of Florida (United States); [Andre V. Ritter](#), Amy L. Oldenburg, The Univ. of North Carolina at Chapel Hill (United States)

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#### Performance comparison of optical coherent tomography and thermophotonic lock-in imaging for early detection of dental caries

Paper 10044-2

Time: 9:10 AM - 9:30 AM

Author(s): [Ashish Gupta](#), [Ashkan Ojaghi](#), [Elnaz Baradaran Shokouhi](#), [Nima Tabatabaei](#), York Univ. (Canada)


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#### Multimodal imaging of dental tissues and biomaterials

Paper 10044-3

Time: 9:30 AM - 9:50 AM

Author(s): [Vladislav V. Yakovlev](#), Texas A&M Univ. (United States)

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#### A pre-clinical early caries detector based on optical coherence tomography and polarized Raman spectroscopy

Paper 10044-4

Time: 9:50 AM - 10:10 AM

Author(s): [Guy Lamouche](#), [Christian Padioleau](#), [Mark Hewko](#), [Michael S. D. Smith](#), [Bernhard J. Schattka](#), [Crystal Fulton](#), [Bruno Gauthier](#), [André Beauchesne](#), [Alex C. Ko](#), National Research Council Canada (Canada); [Lin-P'ing Choo-Smith](#), Product Innovation and FibreCITY, Composites Innovation Ctr. (Canada); [Michael G. Sowa](#), National Research Council Canada (Canada)

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Coffee Break 10:10 AM - 10:40 AM

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## Session 2: OCT in Oral Tissues and Biofilm, NIR Imaging

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Sunday 29 January 2017

10:40 AM - 12:00 PM

Location: Room 2018 (West Level 2)

Session Chair: [Daniel Fried](#), Univ. of California, San Francisco (United States)


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### Characterization of human oral tissues based on quantitative analysis of optical coherence tomography images

Paper 10044-5

Time: 10:40 AM - 11:00 AM

Author(s): Hassan S. Salehi, Ali Kosa, Univ. of Hartford (United States); Mina Mahdian, Stony Brook Medicine, Stony Brook Univ. (United States); Saeid Moslehpour, Hisham Alhajjar, Univ. of Hartford (United States); Aditya Tadinada, Univ. of Connecticut Health Ctr. (United States)


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### Assessing cavitation in artificial approximal dental lesions with near-IR imaging technologies

Paper 10044-6

Time: 11:00 AM - 11:20 AM

Author(s): Jacob C. Simon, Cynthia L. Darling, Daniel Fried, Univ. of California, San Francisco (United States)


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### Near-infrared imaging of enamel hypomineralization due to developmental defects

Paper 10044-7

Time: 11:20 AM - 11:40 AM

Author(s): Robert C. Lee, Andrew Jang, Daniel Fried, Univ. of California, San Francisco (United States)


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### Assessing the dynamic biofilm removal of sulfonated phenolics using CP-OCT

Paper 10044-8

Time: 11:40 AM - 12:00 PM

Author(s): Julia Nikrad, Karin Englund, Robert S. Jones, Univ. of Minnesota School of Dentistry (United States)

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Lunch/Exhibition Break 12:00 PM - 2:00 PM

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## Session 3: Lasers in Disinfection, Hard Tissue Ablation and Clinical Caries Monitoring

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Sunday 29 January 2017

2:00 PM - 3:20 PM

Location: Room 2018 (West Level 2)

Session Chair: [Peter Rechmann](#), Univ. of California, San Francisco (United States)


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### Using of compact Nd:YAG laser operating at 1.06, 1.32, and 1.44 um for disinfection in restorative dentistry

Paper 10044-9

Time: 2:00 PM - 2:20 PM

Author(s): Tatjana Dostálová, Charles Univ. in Prague (Czech Republic); Helena Jelínková, Czech Technical Univ. in Prague (Czech Republic); Martina Kadlecová, Charles Univ. in Prague (Czech Republic); Michal Němec, Jan Šulc, Martin Fibrich, Czech Technical Univ. in Prague (Czech Republic); Karel Nejezchleb, Nickalai Kapitch, CRYTUR spol s.r.o. (Czech Republic)


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### Investigations on the potential of a novel diode pumped Er:YAG laser system at high mean laser power for hard tissue preparation in dentistry

Paper 10044-10

Time: 2:20 PM - 2:40 PM

Author(s): Florian Hausladen, Holger Wurm, Raimund Hibt, Karl Stock, Institut für Lasertechnologien in der Medizin und Messtechnik, Univ. Ulm (Germany)


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### Selective laser ablation of carious lesions using simultaneous scanned near-IR diode and CO2 lasers

Paper 10044-11

Time: 2:40 PM - 3:00 PM

Author(s): Kenneth H. Chan, Daniel Fried, Univ. of California, San Francisco (United States)


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### Developing laser-based therapy monitoring of early caries in pediatric dental settings

Paper 10044-12

Time: 3:00 PM - 3:20 PM

Author(s): Yaxuan Zhou, Yang Jiang, Amy S. Kim, Zheng Xu, Joel H. Berg, Eric J. Seibel, Univ. of Washington (United States)

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**Coffee Break 3:20 PM - 3:50 PM**

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## Session 4: Lasers in Composite Removal, Pulp Vitality Measurements, Bond Strength and Acid Resistance

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Sunday 29 January 2017

3:50 PM - 5:10 PM

Location: Room 2018 (West Level 2)

Session Chair: [Daniel Fried](#), Univ. of California, San Francisco (United States)


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### **A clinical handpiece for the automated ablation of dental composite using a CO2 laser coupled to a plume emission spectral feedback system**

Paper 10044-13

Time: 3:50 PM - 4:10 PM

Author(s): Andrew T. Jang, Univ. of California San Francisco (United States); Kenneth H. Chan, Daniel Fried, Univ. of California, San Francisco (United States)


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### **Laser Doppler pulp vitality measurements: simulation and measurements**

Paper 10044-14

Time: 4:10 PM - 4:30 PM

Author(s): Thomas P. Ertl, Dentsply Sirona international (Germany), LMTB GmbH (Germany)


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### **Bond strength of a sealant resin to CO2 9.3 µm short-pulse irradiated enamel**

Paper 10044-15

Time: 4:30 PM - 4:50 PM

Author(s): Peter Rechmann, K. Sherathiya, Ram Vaderhobli, Beate M. T. Rechmann, Univ. of California, San Francisco (United States)


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### **Influence of multi-wavelength laser irradiation of enamel and dentin surfaces at 0.355, 2.94, and 9.4 µm on surface morphology and acid resistance**

Paper 10044-16

Time: 4:50 PM - 5:10 PM

Author(s): Nai-Yuan N. Chang, Jacob C. Simon, Kenneth H. Chan, Jamison Jew, Robert C. Lee, William A. Fried, Heajin Cho, Cynthia L. Darling, Daniel Fried, Univ. of California, San Francisco (United States)

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## Session PSun: Posters-Sunday

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Sunday 29 January 2017

5:30 PM - 7:30 PM

Location: Moscone West Levels 2 and 3

Conference attendees are invited to attend the BiOS poster session on Sunday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions at <http://spie.org/PWPPosterGuidelines>.


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### **Selective removal of natural caries lesions from tooth occlusal surfaces using a diode-pumped Er:YAG laser**

Paper 10044-17

Time: 5:30 PM - 7:30 PM

Author(s): Jamison Jew, Kenneth H. Chan, Daniel Fried, Cynthia L. Darling, Univ. of California, San Francisco (United States)

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### **High-contrast reflectance imaging of composite restorations color-matched to tooth structure at 1000-2300-nm**

Paper 10044-18

Time: 5:30 PM - 7:30 PM

Author(s): William Fried, Univ. of California, San Francisco (United States); Jacob Simon, Univ of California San Francisco (United States); Cynthia L. Darling, Daniel Fried, Univ. of California, San Francisco (United States)


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### **Assessment of radicular dentin permeability after irradiation with CO2 laser and endodontic irrigation treatments using thermal imaging**

Paper 10044-19

Time: 5:30 PM - 7:30 PM

Author(s): Daniel Fried, Heajin Cho, Robert C. Lee, Kenneth H. Chan, Univ. of California, San Francisco (United States)


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### **Synergistic effect of fluoride and laser radiation for the inhibition of the demineralization of dental enamel**

Paper 10044-20

Time: 5:30 PM - 7:30 PM

Author(s): Raymond Lee, Kenneth H. Chan, Jacob C. Simon, Daniel Fried, Univ. of California, San Francisco (United States)


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**Optical changes of dentin in the near-IR as a function of mineral content**

Paper 10044-21

Time: 5:30 PM - 7:30 PM

Author(s): Rhett Berg, Jacob C. Simon, Daniel Fried, Cynthia L. Darling, Univ. of California, San Francisco (United States)


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**Rapid optical bacterial detection during endodontic treatment**

Paper 10044-22

Time: 5:30 PM - 7:30 PM

Author(s): Dylan Herzog, Naveen Hosny, King's College London (United Kingdom); Sadia Niazi, King's College London (United States); Garrit Koller, Richard Cook, Federico Foschi, Timothy Watson, Francesco Mannocci, Frederic Festy, King's College London (United Kingdom)

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