SPIE. BIOPHOTONICS SOUTH AMERICA

INTERNATIONAL YEAR OF LIGHT 2015

2015

BIOPHOTONICS SOUTH AMERICA.

TECHNICAL PROGRAM

CO-LOCATED WITH IPA CONGRESS 2015

IPA (International Photodynamic Association) Conference 2015

An international event held every two years, organized by the IPA. One registration gives you access to both events.

IPA CONGRESS
Copacabana Palace Hotel
Rio de Janeiro, Brazil
23-26 May 2015

23–25 May 2015
Copacabana Palace Hotel
Rio de Janeiro, Brazil

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2015 BIOPHOTONICS SOUTH AMERICA

23-25 May 2015
Copacabana Palace Hotel
Rio de Janeiro, Brazil

2015 SYMPOSIUM CHAIRS

Cristina Kurachi
Univ. de São Paulo (Brazil)

Katarina Svanberg
Lund Univ. (Sweden) and South China Normal Univ. (China)

Bruce Tromberg
Beckman Laser Institute and Medical Ctr., Univ. of California, Irvine (USA)

2015 SYMPOSIUM CO-CHAIR

Vanderlei Salvador Bagnato
Univ. de São Paulo (Brazil)

COSPONSORS:

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ORGANIZED BY:

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University of Sao Paulo - Sao Carlos
Institute of Physics, Department of Physics and Material Science

On behalf of SPIE and the Organizing Committee, we cordially welcome you to SPIE Biophotonics South America. This new symposium is co-located with the 15th biennial congress of the International Photodynamic Association.

Biophotonics employs the science and technology of photonics to improve the understanding of biological effects and to solve relevant problems in medicine, biology, biotechnology, and environmental research. This fast-growing field includes frontier basic science, technological developments, translational research, and clinical applications, and has yielded several new technologies that are now present in laboratories and clinics worldwide, with more high-potential applications currently under development. In recognition of the global impact of light-based technology, 2015 will be the UNESCO's International Year of Light, which will commemorate and raise awareness of the contributions of optical science to humankind. The Biophotonics South America symposia will be an enthusiastic participant in this worldwide celebration.

This symposium includes both oral and poster presentations with manuscripts published in the proceedings of SPIE. In addition to contributed work, distinguished international experts in the field of biomedical optics will present invited talks.

We hope you enjoy your stay in Rio!

SPIE. BIOPHOTONICS SOUTH AMERICA

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Contents

IN CELEBRATION OF:

INTERNATIONAL YEAR OF LIGHT 2015

Join SPIE in the celebration of the 2015 International Year of Light, which recognizes the importance of the role of light and light-based technologies in our lives, our futures, and in the development of society.

PROCEEDINGS OF SPIE

Full paid registration includes one online proceedings volume.

- Online Proceedings Volume—online access to a single proceedings volume via the SPIE Digital Library. Available as papers are posted.

SPECIAL EVENTS

FREE TUTORIALS

Friday 22 May · Location: Carioca Room

All registered attendees are welcome to attend.

9:00 to 10:30

Vanderlei Bagnato, Cristina Kurachi
Univ. de São Paulo (Brazil)

Light-matter interaction for non-physicists

10:30 to 12:00

Katarzyna Matczyszyn
Wroclaw Univ. of Technology (Poland)

Basis of Photochemistry

14:00 to 15:30

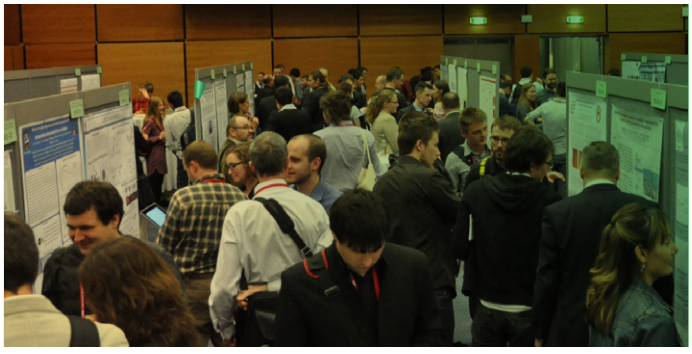
Michael Hamblin
Wellman Ct. for Photomedicine (USA)

Basis of Photobiology and Photomedicine

15:30 to 17:00

Bruce Tromberg
Beckman Laser Institute and Medical Ctr.,
Univ. of California, Irvine (USA)

Optical Spectroscopy and Imaging in Medicine



POSTER VIEWING/COFFEE

Authors will be present during the Poster Session 17:00 to 18:30 hours Saturday and Sunday to answer questions and provide in-depth discussion regarding their papers.
Open to all paid conference attendees.

CONFERENCE DINNER

Sunday 24 May • 19:00 to 21:00 hours

Relax and network with your peers at this conference dinner.
Admission not included with paid conference registration, tickets R$150 (US$60).

PLENARY PRESENTATIONS

Saturday 23 May • 14:00 to 14:30 • Location: Crystal Room

Herch Moyses Nussenzveig
UFRJ (Brazil)

Light and life

Sunday 24 May • 9:30 to 10:00

Tuan Vo-Dinh
Fitzpatrick Institute for Photonics, Duke Univ. (USA)

Plasmonic nanosensors and nanoprobes: harnessing the power of photonics for medical diagnostics and therapy

Sunday 24 May • 14:00 to 14:30

Zhongping Chen
Beckman Laser Institute and Medical Clinic (USA)

Acoustic radiation force optical coherence elastography

Monday 25 May • 9:30 to 10:00

Igor Meglinski
Univ. of Otago (New Zealand)

Polarized light in optical biopsy: enabling technologies towards tissue characterization and imaging

Monday 25 May • 14:00 to 14:30

Sharmila Anandasabapathy
Baylor College of Medicine (USA)

Global endoscopy: opportunities and challenges in endoscopic imaging and early cancer detection

DAILY SCHEDULE

FRIDAY 22 MAY	SATURDAY 23 MAY	SUNDAY 24 MAY		MONDAY 25 MAY	
Morning					
FREE TUTORIAL: **Light-matter interaction for non-physicists,** Vanderlei Bagnato, Cristina Kurachi, Univ. de São Paulo (Brazil), 9:00 to 10:30		PLENARY PRESENTATION II: **Plasmonic nanosensors and nanoprobes: harnessing the power of photonics for medical diagnostics and therapy,** Tuan Vo-Dinh, Fitzpatrick Institute for Photonics, Duke Univ. (USA), 9:30 to 10:00		PLENARY PRESENTATION IV: **Polarized light in optical biopsy: enabling technologies towards tissue characterization and imaging,** Igor Meglinski, Alexander Doronin, Callum Macdonald, Michael Eccles, Univ of Otago (New Zealand), 9:30 to 10:00	
		SESSIONS 3 AND 4 RUN CONCURRENTLY		SESSIONS 7 AND 8 RUN CONCURRENTLY	
FREE TUTORIAL: **Basis of Photochemistry,** Katarzyna Matczyszyn, Wroclaw Univ. of Technology (Poland), 10:30 to 12:00	SESSION 1: **Tissue Microscopy** Session Chair: Herch Moysés Nussenzveig, UFRJ (Brazil), 10:30 to 12:05	SESSION 3: **Tissue Optics,** Session Chair: Stefan Andersson-Engels, Lund Univ. (Sweden), 10:30 to 12:05	SESSION 4: **Photodiagnosis,** Session Chair: Bruce J. Tromberg, Beckman Laser Institute and Medical Clinic (USA), 10:30 to 12:05	SESSION 7: **Spectroscopy I,** 10:30 to 11:50	SESSION 8: **Tissue Optics II,** Session Chair: Timothy C. Zhu, The Univ. of Pennsylvania Health System (USA), 10:30 to 11:35
Afternoon					
	Lunch Break, 12:05 to 14:00	Lunch Break, 12:05 to 14:00		Lunch Break, 12:00 to 14:00	
FREE TUTORIAL: **Basis of Photobiology and Photomedicine,** Michael Hamblin, Wellman Ct. for Photomedicine (USA), 14:00 to 15:30	PLENARY PRESENTATION I **Light and life,** Herch Moysés Nussenzveig UFRJ (Brazil), 14:00 to 14:30	PLENARY PRESENTATION III **Acoustic radiation force optical coherence elastography,** Zhongping Chen, Beckman Laser Institute and Medical Clinic (United States), 14:00 to 14:30		PLENARY PRESENTATION V **Global endoscopy: opportunities and challenges in endoscopic imaging and early cancer detection,** Sharmila Anandasabapathy, Baylor College of Medicine (USA), 14:00 to 14:30	
		SESSIONS 5 AND 6 RUN CONCURRENTLY			
FREE TUTORIAL: **Optical Spectroscopy and Imaging in Medicine,** Bruce Tromberg, Beckman Laser Institute and Medical Ctr., Univ. of California, Irvine (USA), 15:30 to 17:00	SESSION 2: **NanoBiophotonics** Session Chair: Tuan Vo-Dinh, Duke Univ. (USA), 15:00 to 16:45	SESSION 5: **Clinical Applications,** Session Chair: Katarina Svanberg M.D., Lund Univ. Hospital (Sweden), 15:00 to 16:35	SESSION 6: **Instrumentation,** Session Chair: Airton A. Martin, Univ. do Vale do Paraíba (Brazil), 15:00 to 16:35	Session 9: Spectroscopy II, Session Chair: Zhongping Chen, Beckman Laser Institute and Medical Clinic (United States), 15:00 to 16:35	
Evening					
	Posters, 17:00 to 18:30	Posters, 17:00 to 18:30			
		Conference Dinner, 19:00 to 21:00			

CONFERENCE 9531
LOCATION: PALM ROOM

Saturday - Monday 23 - 25 May 2015 • Proceedings of SPIE Vol. 9531

Biophotonics South America

Conference Chairs: **Cristina Kurachi D.D.S.,** Univ. de São Paulo (Brazil); **Katarina Svanberg M.D.,** Lund Univ. Hospital (Sweden); **Bruce J. Tromberg,** Beckman Laser Institute and Medical Clinic (United States)

Conference Co-Chair: **Vanderlei Salvador Bagnato,** Univ. de São Paulo (Brazil)

Program Committee: **Lilian Tan Moriyama,** Univ. de São Paulo (Brazil); **Natalia Mayumi Inada,** Univ. de São Paulo (Brazil); **Sebastião Pratavieira,** Univ. de São Paulo (Brazil)

SATURDAY 23 MAY

SESSION 1

LOCATION: PALM ROOM . . . . . SAT 10:30 TO 12:05

Tissue Microscopy

Session Chair: **Herch Moysés Nussenzveig,** UFRJ (Brazil)

10:30: **Optical coherence tomography for tissue imaging** *(Invited Paper)*, Arnaud Dubois, Lab. Charles Fabry (France) . . . . . [9531-1]

10:50: **Double Stokes Mueller polarimetry to reveal ordered molecular structures within biological tissue**, Masood Samim, Serguei Krouglov, Virginijus Barzda, Univ. of Toronto (Canada) . . . . . [9531-2]

11:05: **Time lapse microscopy of oxidative stress in lung endothelial cells**, Mahsa Ranji, Zahra Ghanian, Univ. of Wisconsin-Milwaukee (United States); Ganesh G. Konduri, Medical College of Wisconsin (United States) . . . . . [9531-3]

11:20: **Delivery of ultrashort spatially focused pulses through a multimode fiber for two photon endoscopic imaging**, Christophe Moser, Edgar E. Morales Delgado, Ioannis N. Papadopoulos, Salma Farahi, Demetri Psaltis, Ecole Polytechnique Fédérale de Lausanne (Switzerland) . . . . . [9531-4]

11:35: **Image correlation based method for the analysis of collagen fibers patterns**, Ramon G. Rosa, Sebastião Pratavieira, Cristina Kurachi D.D.S., Univ. de São Paulo (Brazil) . . . . . [9531-5]

11:50: **Tissue characterization using polarization-sensitive second harmonic generation microscopy**, Danielle Tokarz, Princess Margaret Cancer Ctr. (Canada); Richard Cisek, Ahmad Golaraei, Serguei Krouglov, Univ. of Toronto Mississauga (Canada); Roya Navab, Carolyn Niu, Princess Margaret Cancer Ctr. (Canada); Kazuhiro Yasufuku, Toronto General Hospital (Canada); Ming-Sound Tsao, Shingo Sakashita, Princess Margaret Cancer Ctr. (Canada); Sylvia Asa, Toronto General Hospital (Canada); Virginijus Barzda, Univ. of Toronto Mississauga (Canada); Brian C. Wilson, Princess Margaret Cancer Ctr. (Canada) . . . . . [9531-6]

Lunch Break . . . . . Sat 12:05 to 14:00

PLENARY PRESENTATION I

LOCATION: . . . . . SAT 14:00 TO 14:30

Light and life

Herch Moysés Nussenzveig
UFRJ (Brazil)
[9531-7]

SESSION 2

LOCATION: PALM ROOM . . . . . SAT 15:00 TO 16:45

NanoBiophotonics

Session Chair: **Tuan Vo-Dinh,** Duke Univ. (United States)

15:00: **Non-linear optical visualisation of DNA liquid crystal phases**, Katarzyna Matczyszyn, Joanna Olesiak-Banska, Katarzyna Brach, Wroclaw Univ. of Technology (Poland); Marta Gordel, Wroclaw Univ. of Technology (Poland) and Ecole Normale Supérieure de Cachan (France); Jospeh Zyss, Ecole Normale Supérieure de Cachan (France); Marek Samoc, Wroclaw Univ. of Technology (Poland) . . . . . [9531-9]

15:15: **EGFR-specific nanoprobe biodistribution in mouse models**, Samia B. Fashir, Michael A. Hupman, Dalhousie Univ. (Canada); Maiara L. Castilho, Univ. do Vale do Paraíba (Brazil); Christopher L. D. Lee, Dalhousie Univ. (Canada); Leandro J. Raniero, Univ. do Vale do Paraíba (Brazil); Ian Alwayn, Kevin C. Hewitt, Dalhousie Univ. (Canada) . . . . . [9531-10]

15:30: **Beyond the diffraction limit: subwavelength biophotonics and nanofluidics**, Ahmet A. Yanik, Univ. of California, Santa Cruz (United States) . . . . . [9531-11]

15:45: **Nanoparticle-based contrast agents for dental optical coherence tomography**, Ana K. S. Braz, Renato E. de Araujo, Univ. Federal de Pernambuco (Brazil); Guanying Chen, Tymish Y. Ohulchanskyy, Earl J. Bergey, Shobha Shukla, Univ. at Buffalo (United States); Anderson S. L. Gomes, Univ. at Buffalo (United States) and Univ. Federal de Pernambuco (Brazil); Paras N. Prasad, Univ. at Buffalo (United States) . . . . . [9531-12]

16:00: **Optoacoustic spectroscopy measurements of water-soluble iron oxide nanoparticles**, Herve K. Nguendon Kenhagho, Daniel C. Gallego, Univ. Carlos III de Madrid (Spain); Leisha M. Armijo, Yekaterina I. Brandt, Marek Osi?ski, The Univ. of New Mexico (United States); Horacio R. Lamela Rivera, Univ. Carlos III de Madrid (Spain) . . . . . [9531-13]

16:15: **In vivo luminescence imaging and tomography using upconverting nanoparticles as contrast agents**, Stefan Andersson-Engels, Monirehalsadat Mousavi, Hugo Söderlund, Lund Univ. (Sweden); Haichun Liu, National Univ. of Singapore (Singapore) . . . . . [9531-14]

16:30: **Plasmonic cell transfection using micropyramid arrays**, Nabiha Saklayen, Marinus Huber, Daryl I. Vulis, Harvard Univ. (United States); Marinna Madrid, Harvard School of Engineering and Applied Sciences (United States); Valeria Nuzzo, ECE Paris (France); Eric Mazur, Harvard School of Engineering and Applied Sciences (United States) . . . . . [9531-15]

POSTERS-SATURDAY

LOCATION: POSTER ROOM . . . . . SAT 17:00 TO 18:30

Conference attendees are invited to attend the poster session on Saturday. 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. Coffee will be served.

Poster authors: please put up your poster before the lunch break on Saturday and plan to stand with your poster during the poster session. Please remove your poster following the poster session.

CONFERENCE 9531

SUNDAY 24 MAY

PLENARY PRESENTATION II

LOCATION: CRYSTAL ROOM . . . . . MON 9:30 TO 10:00

Plasmonic nanosensors and nanoprobes: harnessing the power of photonics for medical diagnostics and therapy

Tuan Vo-Dinh,
Fitzpatrick Institute for Photonics, Duke Univ. (United States)
[9531-42]

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

SESSIONS 3 AND 4 RUN CONCURRENTLY.

SESSION 3

LOCATION: PALM ROOM . . . . . SUN 10:30 TO 12:05

Tissue Optics

Session Chair: **Stefan Andersson-Engels,** Lund Univ. (Sweden)

10:30: **Optical coherence elastography for depth-resolved biomechanical assessment of tissues**, Kirill V. Larin, Univ. of Houston (United States). [9531-17]

10:50: **Oil-based gel phantom for ultrasound and optical imaging**, Luciana C. Cabrelli, Pedro Pelissari, Lucimara P. Aggarwal, Univ. de São Paulo (Brazil); Alessandro M. Deana, Univ. Nove de Julho (Brazil); Antonio O. Carneiro, Theo Z. Pavan, Univ. de São Paulo (Brazil). . . . . [9531-18]

11:05: **Quantitative mapping of retinal blood flow from dynamic fluorescein enhanced fluorescence imaging**, Kenneth M. Tichauer, Micah Guthrie, Logan Hones, Lagnojita Sinha, Illinois Institute of Technology (United States); Keith St. Lawrence, Western Univ. (Canada); Jennifer J. Kang-Mieler, Illinois Institute of Technology (United States) . . . . . [9531-19]

11:20: **Retrieving the absorption coefficient of epidermis through the trigonometric parametrization of the diffuse reflectance curves**, Freddy J. Narea, Aarón A. Muñoz Morales, Iraida Graterol, Univ. de Carabobo (Venezuela) . . . . . [9531-20]

11:35: **Clinical Study of ex vivo photoacoustic imaging in endoscopic mucosal resection tissues**, Brian C. Wilson, Liang Lim, Univ. Health Network (Canada); Norman E. Marcon M.D., Catherine J. Streutker M.D., Vladimir V. Iakovlev M.D., St. Michael's Hospital (Canada); Ralph S. Dacosta, Univ. Health Network (Canada); Maria Cirocco, St. Michael's Hospital (Canada); F. Stuart Foster, Sunnybrook Health Sciences Ctr. (Canada) . . . . . [9531-21]

11:50: **Evaluation of the variable depth resolution of active dynamic thermography on human skin**, Nicholas J. Prindeze, Hilary A. Hoffman, Bonnie C. Carney, Jeremy G. Ardanuy, Alex J. George, Lauren T. Moffatt, Jeffrey W. Shupp M.D., MedStar Washington Hospital Ctr. (United States) . . . . . [9531-22]

SESSION 4

LOCATION: RIO ROOM . . . . . SUN 10:30 TO 12:05

Photodiagnosis

Session Chair: **Bruce J. Tromberg,**
Beckman Laser Institute and Medical Clinic (United States)

11:05: **A simple dental caries detection system using full spectrum of laser-induced fluorescence**, Renata M. Rocha-Cabral, Instituto de Pesquisas Energéticas e Nucleares (Brazil); Fausto M. Mendes M.D., Univ. de São Paulo (Brazil); Lucia R. Teixeira, Instituto de Pesquisas Energéticas e Nucleares (Brazil) and Univ. Federal de Pernambuco (Brazil) and Inst. Materno Infantil Professor Fernando Figueira (Brazil); Edison P. Maldonado, Denise M. Zezell, Instituto de Pesquisas Energéticas e Nucleares (Brazil) . . . . . [9531-24]

11:20: **Cadmium-free quantum dot nanoparticles as a novel fluorescence probe for in vivo imaging**, Elnaz Yaghini, Univ. College London (United Kingdom); Helen Turner, Imad Naasani, Lesley Smith, Nanoco Technologies Ltd. (United Kingdom); Alexander J. MacRobert, Univ. College London (United Kingdom) . . . . . [9531-25]

11:35: **Optical diagnostic and photodynamic therapy of early stage cancer using double integrating sphere**, Shamaraz Firdous Sr., Pakistan Institute of Engineering and Applied Sciences (Pakistan) . . . . . [9531-26]

11:50: **Combined phosphorescence-holographic approach for singlet oxygen detection in biological media**, Irina V. Semenova, Ioffe Physical-Technical Institute (Russian Federation); Andrew V. Belashov, Ioffe Physical-Technical Institute (Russian Federation) and National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation); Dina M. Beltukova, Ioffe Physical-Technical Institute (Russian Federation) and Saint-Petersburg State Polytechnical Univ. (Russian Federation); Nikolai V. Petrov, National Research Univ. of Information Technologies, Mechanics and Optics (Russian Federation); Oleg S. Vasyutinskii, Ioffe Physical-Technical Institute (Russian Federation) and Saint-Petersburg State Polytechnical Univ. (Russian Federation) . . . . . [9531-27]

Lunch Break . . . . . 12:05 to 14:00

CONFERENCE 9531

LOCATION: PALM AND RIO ROOMS

PLENARY PRESENTATION III

LOCATION: CRYSTAL ROOM . . . . . SUN 14:00 TO 14:30

Acoustic radiation force optical coherence elastography (Invited Paper)

Zhongping Chen,
Beckman Laser Institute and Medical Clinic (United States)
[9531-28]

SESSIONS 5 AND 6 RUN CONCURRENTLY.

SESSION 5

LOCATION: PALM ROOM . . . . . .SUN 15:00 TO 16:35

Clinical Applications

Session Chair: **Cristina Kurachi D.D.S.,** Univ. de São Paulo (Brazil)

15:00: **Applications of long-range optical coherence tomography in the head, neck, and upper airway** *(Invited Paper)*, Brian J Wong M.D., Giriraj Sharma M.D., Bryan Lemieux, Joe C Jing, Max Wiedmann, Zhongping Chen, Beckman Laser Institute and Medical Clinic (United States) . . . . . [9531-29]

15:20: **Blood vessels detection during brain needle biopsy using a Monte Carlo based sub-diffuse tomography algorithm**, Julien Pichette, Andréanne Goyette, Marie-Andrée Tremblay, Audrey Laurence, Ecole Polytechnique de Montréal (Canada); Michael Jermyn, McGill Univ. (Canada) and Ecole Polytechnique de Montréal (Canada); Kelvin Mok, Montreal Neurological Hospital and Institute (Canada); Keith D. Paulsen, Thayer School of Engineering at Dartmouth (United States); David W. Roberts M.D., Dartmouth Hitchcock Medical Ctr. (United States); Kevin Petrecca, Montreal Neurological Hospital and Institute (Canada); Brian C. Wilson, Ontario Cancer Institute (Canada); Frédéric Leblond, Ecole Polytechnique de Montréal (Canada) . . . . . [9531-30]

15:35: **Radiation dosimetry imaging through gated optical detection of Cerenkov emission**, Brian W Pogue, Rongxiao Zhang, Adam Glaser, Jacqueline Andreozzi, David J Gladstone, Thayer School of Engineering at Dartmouth (United States); Lesley A Jarvis, Geisel School of Medicine (United States). . . . . [9531-31]

15:50: **Evaluation of eye tissue elasticity by means of sound propagation velocity measuring in vivo**, Joao Crispim, Adriano Bogar, Norma Allemann, Univ. Federal de São Paulo (Brazil); Jarbas Caiado Castro Neto, Univ. de São Paulo (Brazil); Wallace Chamon, Univ. Federal de São Paulo (Brazil). . . . . [9531-32]

16:05: **Fluorescence spectroscopy for assessment of liver transplantation grafts concerning graft viability and patient survival**, José D. Vollet Filho, Marina R. da Silveira, Orlando Castro-e-Silva M.D., Vanderlei S. Bagnato, Cristina Kurachi D.D.S., Univ. de São Paulo (Brazil) . . . . . [9531-33]

16:20: **Trans-rectal diffuse optical tomography to monitor photocoagulation during interstitial photothermal therapy of focal prostate cancer**, Brian C. Wilson, Univ. Health Network (Canada) and Univ. of Toronto (Canada); Jie He, Israel Veilleux, Univ. of Toronto (Canada); Daqing Piao, Oklahoma State Univ. (United States); Robert A. Weersink, Univ. Health Network (Canada) . . . [9531-34]

SESSION 6

LOCATION: RIO ROOM . . . . . .SUN 15:00 TO 16:35

Instrumentation

Session Chair: **Airton A. Martin,** Univ. do Vale do Paraíba (Brazil)

15:00: **Conjugated polymer sensors for biology and medicine** *(Invited Paper)*, Ifor D. Samuel, Ashu K. Bansal, Shuoben Hou, Eric M. Bowman, Univ. of St. Andrews (United Kingdom) . . . . . [9531-35]

15:20: **Android phone controlled compact imaging system for biosensing applications**, Khalid M. Arif, Steven Matthews, Adam Naqvi, Massey Univ. (New Zealand). . . . . [9531-36]

15:35: **Compact handheld multispectral fluorescence lifetime imaging (FLIM) endoscope for in vivo imaging of oral cancer**, Shuna Cheng, Rodrigo Cuenca Martinez, Bilal H. Malik, Joey M. Jabbour, Yi-Shing L. Cheng D.D.S., John Wright D.D.S., Brian E. Applegate, Kristen C. Maitland, Javier A. Jo, Texas A&M Univ. (United States). . . . . [9531-37]

15:50: **Exploring automatic optical tweezers system on the evaluation of erythrocytes elasticity**, Diogenes S. Moura, Univ. Federal Rural de Pernambuco (Brazil); Diego C. N. Silva, Ajoke J. Williams, Marcos A. C. Bezerra, Adriana Fontes, Renato E. de Araujo, Univ. Federal de Pernambuco (Brazil) . . . . [9531-38]

16:05: **A compact multi-wavelength optoacoustic system based on high-power diode lasers for biomedical applications**, Luca Leggio, Omar E. de Varona, Pedro Escudero, Univ. Carlos III de Madrid (Spain); Leisha M. Armijo, Yekaterina I. Brandt, The Univ. of New Mexico (United States); Guillermo Carpintero del Barrio, Univ. Carlos III de Madrid (Spain); Marek Osiński, The Univ. of New Mexico (United States); Horacio R. Lamela Rivera, Univ. Carlos III de Madrid (Spain) . . . . . [9531-39]

16:20: **Development of an in situ controllable polymerization tool and process for hydrogel used to replace nucleus pulposus**, Dominique Pioletti, Andreas Schmocker, Azadeh Khoushabi, Cédric M. El Maleh, Pierre-Etienne Bourban, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Constantin Schizas, Ctr. Hospitalier Univ. Vaudois (Switzerland); Benjamin Gantenbein-Ritter, Samantha Chand, Univ. Bern (Switzerland); Christophe Moser, Ecole Polytechnique Fédérale de Lausanne (Switzerland) . . . . . [9531-41]

POSTERS-SUNDAY

LOCATION: POSTER ROOM. . . . . SUN 17:00 TO 18:30

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Innovative parameters obtained for digital analysis of microscopic images to evaluate in vitro hemorheological action of anesthetics, Bibiana D. Riquelme, Univ. Nacional de Rosario (Argentina) and Instituto de Física Rosario (Argentina); Analía I. Alet, Sabrina Basso, Marcela Delannoy, Nicolas Alet, Univ. Nacional de Rosario (Argentina); Mabel D'Arrigo, Univ. Nacional de Rosario (Argentina) and Instituto de Física Rosario (Argentina); Horacio V. Castellini, Univ. Nacional de Rosario (Argentina) . . . . . [9531-23]

In-vivo, percutaneous, needle based, optical coherence tomography of renal masses, Peter G. K. Wagstaff M.D., Daniel M. de Bruin, Patricia J. Zondervan M.D., Otto M. van Delden M.D., Ton G. van Leeuwen, Academisch Medisch Centrum (Netherlands); R. Jeroen A. van Moorselaar M.D., Vrije Univ. Medical Ctr. (Netherlands); Jean J. M. C. H. de la Rosette M.D., M. Pilar Laguna Pes M.D., Academisch Medisch Centrum (Netherlands). . . . . [9531-116]

Fluorescence diagnosis of upper respiratory tract infections, Kate C. Blanco, Natalia M. Inada, Cristina Kurachi D.D.S., Vanderlei S. Bagnato, Univ. de São Paulo (Brazil) . . . . . [9531-117]

Plasmonic enhancement in the photoinactivation of Escherichia Coli using Rose Bengal and gold nanoparticles, Heike Kagel, Julia H. G. Humme, Fachochschule für Technik und Wirtschaft Berlin (Germany); Edvaldo A. R. Rosa, Pontifícia Univ. Católica do Paraná (Brazil); Rozane F. Turchiello, Arandi G. Bezerra, Univ. Tecnológica Federal do Paraná (Brazil). . . . . [9531-118]

Fluorescent liposomes to probe how DOTAP lipid concentrations can change red blood cells homeostasis, Anna Lívia L. Matos, Goreti Pereira, Beate S. Santos, Adriana Fontes, Univ. Federal de Pernambuco (Brazil). . . . . [9531-119]

Analysis of photodynamic cream effect in dental caries using optical coherence tomography, Patricia Babosa, Univ. Cruzeiro do Sul (Brazil); Anderson Zanardi de Freitas, Instituto de Pesquisas Energéticas e Nucleares (Brazil); Giselle R. de Sant´Anna, Univ. Cruzeiro do Sul (Brazil) . . . . . [9531-120]

Micro energy-dispersive x-ray fluorescence spectrometry study of dentin coating with nanobiomaterials, Luis E. Soares, Sidnei Nahorny, Fernanda R. Marciano, Univ. do Vale do Paraíba (Brazil); Hudson Zanin, Instituto Nacional de Pesquisas Espaciais (Brazil); Anderson de Oliveira Lobo, Univ. do Vale do Paraíba (Brazil) . . . . . [9531-121]

The decontamination of oral mouth by antimicrobial photodynamic therapy, Alessandra Nara S. Rastelli D.D.S., Emanuelle T. Carreira, Univ. de São Paulo (Brazil); Clóvis Wesley O. Souza, Univ. Federal de São Carlos (Brazil); Adilson César A. Bernardi, Ctr. Univ Araraquara (Brazil); Vanderlei S. Bagnato, Univ. de São Paulo (Brazil) . . . . . [9531-122]

Assembly and characterization of a fluorescence lifetime spectroscopy system for skin lesions diagnostic, Marcelo Saito Nogueira, Sebastião Pratavieira, Camila de Paula D´Almeida, Cristina Kurachi D.D.S., Univ. de São Paulo (Brazil) . . . . . [9531-123]

In vivo quantitative tumor classification using targeted SERS nanoparticles, Santa Borel, Univ. of Toronto (Canada); Carl J. Fisher, Univ. of Toronto (Canada); Patrick Z. McVeigh, Gang Zheng, Univ. of Toronto (Canada); Brian C. Wilson, Univ. of Toronto (Canada) and Ontario Cancer Institute (Canada) . . . . . [9531-124]

Monitoring the variation of blood glucose by diffuse reflection spectrophotometry, Iraida Graterol, Aarón A. Muñoz Morales, Jose Ostos, Freddy J. Narea, Univ. de Carabobo (Venezuela) . . . . . [9531-125]

Photopolymerization method and device to treat aneurysms, Nikos Stergiopulos, Andreas Schmocker, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Pascal Mossiman, Ctr. Hospitalier Univ. Vaudois (Switzerland); Blaise Robert, Dominique Pioletti, Christophe Moser, Ecole Polytechnique Fédérale de Lausanne (Switzerland) . . . . . [9531-126]

The ablation threshold of Er;Cr:YSGG laser radiation in bone tissue, Carolina Benetti, Denise M. Zezell, Instituto de Pesquisas Energéticas e Nucleares (Brazil) . . . . . [9531-127]

Optical coherence tomography applied to the evaluation of wear of composite resin for posterior teeth, Claudia C. B. O. Mota, Univ. Federal de Pernambuco (Brazil) and Associação Caruaruense de Ensino Superior e Técnico (Brazil); Bruna A. Guerra, Brena S. A. Machado, Adolfo J. Cabral, Anderson S. L. Gomes, Univ. Federal de Pernambuco (Brazil) . . . . . [9531-128]

Adapting smartphones for low-cost optical medical imaging, Sebastião Pratavieira, José D. Vollet-Filho, Pablo A. Gómez García, Kate C. Blanco, Fernanda M. Carbinatto, Natalia M. Inada, Vanderlei S. Bagnato, Cristina Kurachi D.D.S., Univ. de São Paulo (Brazil) . . . . . [9531-129]

Diagnosis of occlusal caries lesions in primary molars started in default for spreading of coherent light speckle, Silvia Regina Garcia Olivan, Sandra K. Bussadori, Alessandro M. Deana, Univ. Nove de Julho (Brazil) . . . . . [9531-130]

FT Raman spectroscopy in the study of human teeth under medications demineralization, Giselle R. de Sant' Anna, Evelyn Nascimento, Univ. Cruzeiro do Sul (Brazil); Edson A. P. Santos, Univ. do Vale do Paraíba (Brazil); Amanda G. Higa, Cruzeiro do Sul University-UNICSUL (Brazil); Ana Maria do Espirito Santo, Univ. Federal de São Paulo (Brazil); Airton A. Martin D.D.S., Univ. do Vale do Paraíba (Brazil) . . . . . [9531-131]

Evaluation of the molecular mechanisms of bacterial resistance in Pseudomonas aeruginosa by FTIR microspectroscopy, Icaro M. Barbosa, Paula C. Rodrigues, Rogerio Philippov, Airton A. Martin, Univ. do Vale do Paraíba (Brazil) . . . . . [9531-132]

Effects of infrared laser on the bone repair assessed by x-ray microtomography (μCT) and histomorphometry, Alessandra R. Paolillo, Univ. Federal de São Carlos (Brazil) and Univ. de São Paulo (Brazil); Fernanda R. Paolillo, Alessandro M. H. Silva, Univ. de São Paulo (Brazil); Rodrigo B. Reiff, Univ. Federal de São Carlos (Brazil); Vanderlei S. Bagnato, José M. Alves, Univ. de São Paulo (Brazil) . . . . . [9531-133]

New speckle analysis algorithm for flow visualization in optical coherence tomography images, Lucas R. De Pretto, Gesse Eduardo C. Nogueira, Anderson Zanardi de Freitas, Instituto de Pesquisas Energéticas e Nucleares (Brazil) . . . . . [9531-134]

New speckle analysis method for optical coherence tomography signal based on autocorrelation, Lucas R. De Pretto, Gesse Eduardo C. Nogueira, Anderson Zanardi de Freitas, Instituto de Pesquisas Energéticas e Nucleares (Brazil) . . . . . [9531-135]

Determination of radiation levels without producing damage to blood cells, Lisbeth Martinez, Constanza Parra, Juan Manuel Quiroga, Univ. Manuela Beltrán (Colombia) . . . . . [9531-136]

Healing of burns with synthetic membrane and low intensity laser therapy, Daniela F. Silva, Mariana T. Gomes, Natália P. Piccolo, Gabriela R. S. Campos, Cristiane M. França, Raquel A. Mesquita-Ferrari, Kristianne Porta S. Fernandes, Univ. Nove de Julho (Brazil) . . . . . [9531-137]

Comparative analysis of gingival phenotype in animal and human experimental models using optical coherence tomography in a non-invasive approach, Claudia C. B. O. Mota, Univ. Federal de Pernambuco (Brazil) and Associação Caruaruense de Ensino Superior e Técnico (Brazil); Luana O. Fernandes, Daniela S. Feitosa, Luciana S. A. de Melo, Renata Cimões, Anderson S. L. Gomes, Univ. Federal de Pernambuco (Brazil). . . . . [9531-139]

Enhancing the optical contrast in tissue slide analysis using Red, Green and Blue LEDs as microscope light source, Felipe F. Navascues, Ramon G. T. Rosa, Sebastião Pratavieira, Cristina Kurachi D.D.S., Vanderlei S. Bagnato, Univ. de São Paulo (Brazil) . . . . . [9531-141]

In situ visualization of dermal collagen dynamics during skin burn healing using second-harmonic-generation microscopy, Takeshi Yasui, Eiji Hase, Univ. of Tokushima (Japan); Ryosuke Tanaka, Osaka Univ. (Japan); Tetsuo Iwata, Univ. of Tokushima (Japan); Shuichiro Fukushima, Tsutomu Araki, Osaka Univ. (Japan). . . . . [9531-142]

Optical fluorescence spectroscopy to detect hepatic necrosis after normothermic ischemia: animal model, Jorge L. Fernandez, Univ. de São Paulo (Brazil); Renan Romano, Univ de Sao Paulo (Brazil); José D. Vollet-Filho, Sebastião Pratavieira, Cristina Kurachi D.D.S., Vanderlei S. Bagnato, Orlando Castro-e-Silva M.D., Ajith K. Sankarankutty M.D., Univ. de São Paulo (Brazil) . . . . . [9531-143]

CONFERENCE 9531

MONDAY 25 MAY

PLENARY PRESENTATION IV

LOCATION: CRYSTAL ROOM . . . . . SUN 9:30 TO 10:00

Polarized light in optical biopsy: enabling technologies towards tissue characterization and imaging

Igor Meglinski, Alexander Doronin, Callum Macdonald, Michael Eccles,
Univ of Otago (New Zealand)
[9531-16]

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

SESSIONS 7 AND 8 RUN CONCURRENTLY.

SESSION 7

LOCATION: PALM ROOM . . . . . MON 10:30 TO 11:50

Spectroscopy I

Session Chair: **Dr. Denise Zezell,** Univ. de São Paulo (Brazil)

10:30: **Fabry-Perot microstructured polymer optical fibre sensors for opto-acoustic endoscopy** *(Invited Paper)*, Christian F. B. Broadway, Daniel C. Gallego, Univ. Carlos III de Madrid (Spain); Getinet T. Woyessa, Technical Univ. of Denmark (Denmark); Andreas Pospori, Aston Univ. (United Kingdom); Guillermo Carpintero del Barrio, Univ. Carlos III de Madrid (Spain); Ole Bang, DTU Fotonik (Denmark); Kate Sugden, Aston Univ. (United Kingdom); Horacio R. Lamela Rivera, Univ. Carlos III de Madrid (Spain) . . . . . [9531-43]

10:50: **The intracellular trafficking pathway of Antibody-conjugated Pulchellin in HIV-infected cells by confocal microscopy**, Mohammad Sadraeian, Fernando M. Tsutae, Heline H. T. Moreira, Ana Paula Ulian de Araujo, Univ. de São Paulo (Brazil); Seth H. Pincus, Louisiana State Univ. (United States); Francisco E. Gontijo Guimarães, Univ. de São Paulo (Brazil) . . . . . [9531-44]

11:05: **In vitro evaluation of ionizing radiation effects in bone tissue by FTIR spectroscopy and dynamic mechanical analysis (DMA)**, Denise M. Zezell, Marcelo N. Veloso, Carolina Benetti, Derly A. Dias, Rodolfo Politano, Instituto de Pesquisas Energéticas e Nucleares (Brazil); Thiago M. Pereira, Univ. Federal de São Paulo (Brazil) . . . . . [9531-45]

11:20: **Combined Infrared-Fluorescence sensing platform for advanced breath analysis**, Paula R. Fortes, Univ. Estadual de Campinas (Brazil); João F. S. Petruci, Univ. Estadual Paulista "Júlio de Mesquita Filho" (Brazil); Andreas Wilk, Felicia Seichter, Univ. Ulm (Germany); Arnaldo A. Cardoso, Univ. Estadual Paulista "Júlio de Mesquita Filho" (Brazil); Ivo M. Raimundo, Univ. Estadual de Campinas (Brazil); Boris Mizaikoff, Univ. Ulm (Germany) . . . [9531-46]

11:35: **Assessment of mango fruit ripening using fluorescence spectroscopy**, Rahat Ullah, National Institute of Lasers & Optronics (Pakistan) . . . . . [9531-47]

11:50: **Optoacoustic processing algorithms for intravascular imaging using polymer optical interferometric ultrasonic sensors**, Pablo González, Ehsan Dadrasnia, Omar E. de Varona, Horacio R. Lamela Rivera, Univ. Carlos III de Madrid (Spain) . . . . . [9531-49]

SESSION 8

LOCATION: RIO ROOM . . . . . MON 10:30 TO 11:35

Tissue Optics II

Session Chair: **Timothy C. Zhu,**
The Univ. of Pennsylvania Health System (United States)

10:30: **Frequency components in time-resolved optical signals measured on the surface of the head for assessment of cerebral autoregulation** *(Invited Paper)*, Michal Kacprzak, Piotr Sawosz, Institute of Biocybernetics and Biomedical Engineering (Poland); Wojciech Weigl, Uppsala Univ. Hospital (Sweden); Adam Liebert, Institute of Biocybernetics and Biomedical Engineering (Poland) . . . . . [9531-50]

10:50: **Infrared irradiation of skin for the development of non-invasive health monitoring technologies**, Gregory E. Triplett, Hisham Abdussamad Abbas, Univ. of Missouri-Columbia (United States) . . . . . [9531-51]

11:05: **In-vitro visualization of deep blood vessels using laser speckle imaging and PCA**, Roger Chiu, Univ. de Guadalajara (Mexico); Angel Cruz-Arias, Ruben Ramos-Garcia, Julio C. Ramirez-San-Juan, Instituto Nacional de Astrofísica, Óptica y Electrónica (Mexico). . . . . [9531-53]

11:20: **3D Monte carlo radiation transfer modeling of photodynamic therapy**, Catherine L. Campbell, Christian T. A. Brown, Kenneth Wood, Univ. of St. Andrews (United Kingdom); Ronan M. Valentine, Ninewells Hospital and Medical School (United Kingdom); Harry Moseley, Univ. of Dundee (United Kingdom) . . . . . [9531-54]

Lunch Break . . . . . 12:00 to 14:00

CONFERENCE 9531
LOCATION: RIO ROOM

PLENARY PRESENTATION V
LOCATION: CRYSTAL ROOM . . . . . MON 14:00 TO 14:30

Global endoscopy: opportunities and challenges in endoscopic imaging and early cancer detection

Sharmila Anandasabapathy,
Baylor College of Medicine (United States)
[9531-55]

SESSION 9
LOCATION: RIO ROOM . . . . . MON 15:00 TO 16:35

Spectroscopy II
Session Chair: **Zhongping Chen,**
Beckman Laser Institute and Medical Clinic (United States)

15:00: **Multiplexing intracellular redox potential and pH measurements in 3D breast cancer tumour models using SERS nanosensors** *(Invited Paper)*, Lauren E. Jamieson, The Univ. of Edinburgh (United Kingdom); Aleksandra Jaworska, Jagiellonian Univ. in Krakow (Poland); Pierre O. Bagnaninchi, Jing Jiang, Kate Fisher, The Univ. of Edinburgh (United Kingdom); David J. Harrison, Univ. of St. Andrews (United Kingdom); Colin J. Campbell, The Univ. of Edinburgh (United Kingdom) . . . . . [9531-56]

15:20: **Biochemical changes in cutaneous squamous cell carcinoma submitted to PDT using ATR-FTIR spectroscopy**, Cássio A. Lima, Instituto de Pesquisas Energéticas e Nucleares (Brazil) and Univ. de São Paulo (Brazil); Carolina Benetti, Instituto de Pesquisas Energéticas e Nucleares (Brazil) and Univ. Federal do ABC (Brazil); Viviane P. Goulart, Instituto de Pesquisas Energéticas e Nucleares (Brazil); Pedro A. Castro, Instituto de Pesquisas Energéticas e Nucleares (Brazil) and Faculdade de Tecnologia de São Paulo (Brazil); Luciana Corrêa, Univ. de São Paulo (Brazil); Denise M. Zezell, Instituto de Pesquisas Energéticas e Nucleares (Brazil) . . . . . [9531-57]

15:35: **Optical diagnosis of HCV infection in human blood sera using Raman spectroscopy**, Mushtaq Ahmed, Muhammad Bilal, National Institute of Lasers & Optronics (Pakistan); Haq Nawaz, Univ. of Agriculture, Faisalabad (Pakistan); Muhammad Saleem, National Institute of Lasers & Optronics (Pakistan). [9531-58]

15:50: **Applications of Raman spectroscopy in life science**, Airton A. Martin, Claudio A. Téllez, Said M. Ali, Lazaro P. Medeiros, Renata A. Canevari, Univ. do Vale do Paraíba (Brazil) . . . . . [9531-59]

16:05: **Optical pathology diagnosis of brain cancer by native fluorescence and Stokes shift spectroscopy**, Yan Zhou M.D., The General Hospital of the Air Force, PLA (China); Cheng-Hui Liu, The City College of New York (United States); Yong He, Beijing Normal Univ. (China); Xinguang Yu M.D., Gangge Cheng M.D., Peng Wang M.D., Cheng Shu M.D., The General Hospital of the Air Force, PLA (China); Yang Pu, Robert R. Alfano, The City College of New York (United States) . . . . . [9531-60]

16:20: **Localization of subsurface fluorescent lesions using surface spectral measurements**, Kolbein Kolste, Stephen C. Kanick, Thayer School of Engineering at Dartmouth (United States); Pablo A. Valdes, Brigham and Women's Hospital (United States) and Boston Children's Hospital (United States); Brian C. Wilson, Univ. of Toronto (Canada); David W. Roberts M.D., Dartmouth Hitchcock Medical Ctr. (United States); Frédéric Leblond, Ecole Polytechnique de Montréal (Canada); Keith D. Paulsen, Thayer School of Engineering at Dartmouth (United States) . . . . . [9531-61]

16:35: **Human dental enamel sterilization by gamma radiation aimed in situ use**, Claudia B. Zamataro, Instituto de Pesquisas Energéticas e Nucleares (Brazil); Carolina Benetti, Instituto de Pesquisas Energéticas e Nucleares (Brazil) and Univ. Federal do ABC (Brazil); Cássio A. Lima, Instituto de Pesquisas Energéticas e Nucleares (Brazil) and Univ. de São Paulo (Brazil); Marcelo N. Veloso, Denise M. Zezell, Instituto de Pesquisas Energéticas e Nucleares (Brazil); Patricia A. Ana, Univ. Federal do ABC (Brazil) . . . . . [9531-62]

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Q

R

S

T

U

V

W

Y

Z

GENERAL INFORMATION

Venue

SPIE Biophotonics South America will take place in this glamorous Art Deco landmark overlooking Copacabana Beach

Copacabana Palace Hotel
Avenida Atlântica 1702
Rio de Janeiro, 22021 001
Brazil

Registration

Onsite Registration and Badge Pick-up Hours
Copacabana Palace Hotel

Friday 22 May	13:00 to 17:00
Saturday 23 May	8:30 to 17:00
Sunday 24 May	8:30 to 17:00
Monday 25 May	8:30 to 17:00

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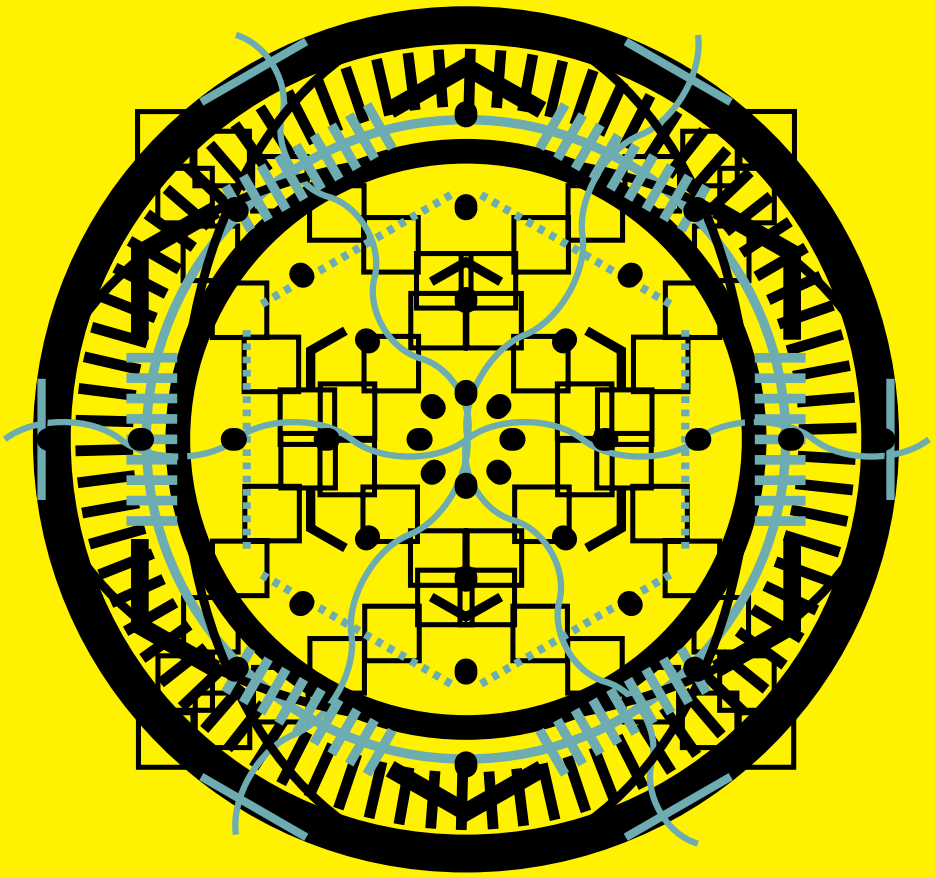

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