

Boa Viagem	Candeias A	Candeias B	Piedade
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femtosecond pulses to coherent control the synthesis of gold nanoparticles induced by two-photon absorption. Applying distinct phase masks to the pulse, we were able to shift the plasmon absorption band.

TuF2 • 11.10 Invited

Ultrafast Semiconductor Lasers in the Thin Disk Geometry, *B. Rudin, M. Hoffmann, V. J. Wittwer, W. P. Pallmann, M. Golling, Y. Barbarin, T. Südmeyer, Ursula Keller*; *ETH Zurich, Switzerland.*

We have demonstrated the highest average power of any modelocked semiconductor laser: the optically pumped MIXSEL generates 6.4 W in 28-ps pulses at 2.5-GHz repetition rate. Furthermore, we discuss electrically pumped VECSELS optimized for passive modelocking.

TuE2 • 11.30
Imaging of Third-Degree Burned Skin by Two-Photon Emission Fluorescence Microscopy and Second Harmonic Generation Microscopy

Moisés Oliveira dos Santos¹, Vitor Bianchini Pelegati², Carlos Lenz Cesar², Telma Maria Tenório Zorn³, Denise Zezell¹; *¹Univ. of São Paulo, Brazil, ²Inst. de Física Gleb Wataghin- UNICAMP, Brazil, ³Inst. de Ciências Biomédicas- Univ. de São Paulo, Brazil.*
 Third-degree burn is an

TuG3 • 11.10

Quaternary Amplitude-Shift Keying Modulation Generated by Parametric Amplification, *Jorge D. Marconi¹, Marcelo L. F. Abbade², Andre L. A. Costa³, Felipe R. Barbosa³, Edson Moschim³, Hugo L. Fragnito⁴*; *¹UFABC, Brazil, ²School of Electrical Engineering, PUC-Campinas., Brazil, ³FEEC, Univ. of Campinas., Brazil, ⁴IFGW, Univ. of Campinas., Brazil.* This work presents experimental results concerning a new all-optical technique that multiplexes two binary signals into a quaternary one. The technique is based on parametric amplification. Simulation and experimental results present a rather good agreement.

TuG4 • 11.30
Third-Harmonic Generation with Femtosecond Pulses at Different Rayleigh Ranges,

Emerson C. Barbano, Jonathas P. Siqueira, Cleber R. Mendonça, Lino Misoguti, Sergio C. Zilio; *Inst. de Física de São Carlos, Brazil.* We report on the third-harmonic intensity and spectrum of silica using the Z-scan method at different Rayleigh ranges with femtosecond laser. To explain the third-harmonic signal, we have to

TuH2 • 11.10 Invited

Zernike Polynomials and Beyond, *Virendra N. Mahajan*; *The. Aerospace Corp., USA.* We discuss why we use Zernike circle polynomials in optics, when to use them, and what to use in their place when not to use them.

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injury that extend down to subdermal layer. In this study, we characterized the dermis of third-degree burns by using two-photon emission fluorescence microscopy (TPEFM) and second harmonic generation (SHG).

take into account the interfaces contributions.

TuE3 • 11.50

Bovine Versus Human Dental Hard Tissues Under Ultrashort Laser Ablation: Morphological and Physical Aspects, Francisco de Assis Rego Filho¹, Maristela Dutra-Corrêa², Gustavo Nicolodelli³, Vanderlei Salvador Bagnato³, Maria Tereza de Araujo¹;
¹Univ. Federal de Alagoas, Brazil, ²Univ. Paulista – UNIP, Brazil, ³Univ. de São Paulo, Brazil. This study aims to present, morphological and physical aspects of the femtosecond laser ablation of dental hard tissues, from different animal origins, at varying structural water composition, showing general and specific ablation qualities.

TuE4 • 12.10

The Determination of Biochemical Changes of Women Skin Layers as Function of Aging by Confocal Raman Spectroscopy, Maira G. Tosato, Rani S. Alves, Leandro Raniero, Airton A. Martin; Univ. do Vale do Paraíba, Brazil. The biochemical changes that occurred during the aging process were studied by Confocal Raman

TuF3 • 11.50 Invited

A Simple Bend Sensor Using a Twin Core Fiber Mach-Zehnder Interferometer, A. Harhira, J. Lapointe, Raman Kashyap; Ecole Polytechnique de Montreal, Canada. A simple bend sensor based on a multimode fiber combined with a twin-core fiber is proposed. The section of twin-core fiber is spliced between a section of multimode fiber and a single mode fiber. The bend shifts the interference fringe peak wavelengths which are monitored. A shift toward shorter wavelengths is observed. This device is simple to fabricate, and is used as a bend sensor with good sensitivity.

TuG5 • 11.50 Invited

Revivals of Quadratic Nonlinear Optics at the Nanoscale: New Materials and Imaging Configurations, Dominique Chauvat¹, Bassam Hajj¹, Halina Mojziso¹, Dan Oron², Helen Sung¹, Shoshana Winter², Joanna Olesiak³, Kasya Matczyszyn³, Marcin Zielinski¹, Joseph Zyss¹;
¹École Normale Supérieure de Cachan, France, ²Weizmann Inst. of Science, Israel, ³Wroclaw Univ. of Technology, Poland. Nanoscale engineering of functional-materials is reviving quadratic-nonlinear optics in conjunction with new quantitative multiphoton imaging-techniques allowing phase and polarization-resolution. It permits full tensor characterization of individual nanoparticles as well as mapping of artificial and bio-environments.

TuH3 • 11.50 Invited

Photometric Testing of Light Sources and Luminaires for Energy Efficient Lighting, Hans-Peter Grieneisen; INMETRO, Brazil. A report is presented on the optical testing activities at Inmetro for assessment on performance and color quality of illuminants for general lighting applications according to international standards and practices. Current methods require improvements for SS-lighting.