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Advance Programme

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Sponsored by
- European Physical Society / Quantum Electronics and Optics Division
- IEEE Photonics Society
- The Optical Society
ED-5.5 WED 15:00
Coherent control of quantum cascade laser frequency combs via electrical injection locking
J. Hiltbrand1, A. M. Andrews2, H. Dett2, G. Strasser2, and B. Schwarz2;
1Institute of Solid State Electronics, TU Wien, Vienna, Austria; 2Center for Micro- and Nanosystems, TU Wien, Vienna, Austria; 3CEITEC Brno University of Technology, Brno, Czech Republic
Coherent electrical injection-locking allows to reference the repetition frequency of quantum cascade laser frequency combs to an external RF oscillator. We investigate the dynamics of the injection-locked QCL comb and demonstrate its applications in dual-comb spectroscopy.

ED-5.6 WED 15:15
Frequency noise and phase-locking of a quantum cascade laser-pumped, 1.073 terahertz molecular laser using a 1560nm frequency comb
S. Barbieri1, J.-F. Lampin1, G. Santarelli1, A. Poggi1, S. Eier1, J. Heiser2, W. Hensel1, and R. Holzwarth2; 1Laboratoire IEMN, CNRS, Université de Lille, Villeneuve d'Ascq, France; 2Institut d'Optique Graduate School, CNRS, Université de Paris-Sud, Palaiseau, France; 3Virginia Diodes Inc, Chantilly, USA; 4Meso Systems GmbH, Martinsried, Germany
We report the measurement of the frequency noise power spectral density of a quantum cascade laser-pumped 1.073 THz molecular laser, and demonstrate its phase-locking to the harmonic of the repetition rate of a 1560nm frequency comb.

CE-9.5 WED 15:00
Rare-earth activated polymer composite fibers - technology and characterization
R. Piramidovicz1, A. Jusza1, K. Anders1, L. Liptík1, and P. Mergo1; 1Warsaw University of Technology, Institute of Microelectronics and Optoelectronics, Warsaw, Poland; 2Institute of Electronic Materials Technology, Warsaw, Poland; 3Faculty of Chemistry, Maria Curie-Sklodowska University, Lublin, Poland
In this work, we present the results of research on PMMA-based composites and first polymer composite fibers activated with rare-earth ions, discussing main technological problems and challenges as well as the results achieved so far.