

Oxide-based Materials and Devices XI

Monday - Thursday 3 - 6 February 2020

Conference Sessions At A Glance

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OPTO Plenary Session

1: Ga₂O₃: Defects, Doping and Density of States I**2:** Ga₂O₃: Defects, Doping and Density of States II**3:** Ga₂O₃: Material Engineering**4:** Ga₂O₃ for Power Applications**5:** Ga₂O₃: Applications Driven Material Structuring**6:** ZnGa₂O₄ Based Devices and Properties**7:** Nanostructured Growth, Properties and Applications**8:** Plasmonics and Photonics**9:** Electronic Devices**10:** Photodetectors and Sensors**11:** Material Properties

Poster Session

12: Thin-Film Growth and Doping**13:** Photovoltaics and Energy Harvesting**14:** Oxides-based Devices

Important Dates

Abstract Due:

24 July 2019

Author Notification:

30 September 2019

Manuscript Due Date:

8 January 2020

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MONDAY 3 FEBRUARY

Shc




Session Plen: OPTO Plenary Session

Zinc oxide for THz quantum-cascade devices *(Invited Paper)*

Paper 11281-47

Time: 2:00 PM - 2:25 PM

Author(s): Jean-Michel Chauveau, Nolwenn Le Biavan, Maxime Hugues, Ctr. de recherche sur l'hétéroépitaxie et ses applications (France); Mi Julen Tamayo-Arriola, Instituto de Sistemas Optoelectrónicos y Microtecnología, Univ. Politécnica de Madrid (Spain); Arnaud Jollivet, Ctr. de Nanotechnologies (France); Borislav Hinkov, Hanh Thi Hoang, Technische Univ. Wien (Austria); Bo Meng, ETH Zurich (Switzerland); Denis de recherche sur l'hétéroépitaxie et ses applications (France); Maria Tchernycheva, François H. Julien, Ctr. de Nanosciences et de Nanotechnologies (France); Gottfried Strasser, Technische Univ. Wien (Austria); Adrián Hierro, Instituto de Sistemas Optoelectrónicos y Microtecnología, Univ. Politécnica de Madrid (Spain); Jérôme Faist, ETH Zurich (Switzerland)

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Quantum Cascade Lasers are very efficient and already commercialized. Now lots of effort are made to shift from IR to THz due to the numerous applications linked to this wavelength domain. But the operation temperature is still limited to ~200 K in the THz range due to an intrinsic limit of material systems used (related to the low LO-phonon energy of III-V compounds). In this presentation we will show that Zinc Oxide could be a candidate for this application thanks to its large LO-phonon energy (72 meV). Nevertheless, the quantum cascade devices represent a tremendous challenge in terms of design, growth and processing. Establishing a new state-of-the-art for the design, growth and processing of ZnO/ZnMgO heterostructures is the main aim of our project funded by the European Commission's HORIZON 2020 ("ZOTERAC" FET-OPEN 6655107). In this presentation we will review our strategies to tackle all these issues to achieve THz emitters.

Direct studies on nonlinear oxide crystals able to generate mid-infrared parametric light *(Conference Presentation)* *(Invited Paper)*

Paper 11281-48

Time: 2:25 PM - 2:50 PM


Author(s): Patricia Segonds, Benoit Boulanger, Institut NÉEL (France)

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Q-switch using magneto-optical garnet film for holographic application *(Invited Paper)*

Paper 11281-51

Time: 2:50 PM - 3:15 PM


Author(s): Taichi Goto, Shutaro Nakata, Yuichi Nakamura, Hironaga Uchida, Mitsuteru Inoue, Toyohashi Univ. of Technology (Japan)

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Multiple roles of oxides interfacing metal plasmonic nanoparticles: a new way to tailor functionality *(Invited Paper)*

Paper 11281-78

Time: 3:15 PM - 3:40 PM

Author(s): Maria Losurdo, Istituto di Nanotecnologia (Italy); Yael Gutiérrez Vela, Univ. de Cantabria (Spain); Maria Michela Giangregorio, Istituto di Nanotecnologia (Italy); Fernando Moreno, Univ. de Cantabria (Spain); April S. Brown, Duke Univ. (United States)

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Coffee Break 3:40 PM - 4:00 PM

Session 11: Material Properties

Wednesday 5 February 2020

4:00 PM - 5:45 PM


Location: Room 70 (Lower Mezzanine South)

Session Chairs: [Takeyoshi Onuma](#), Kogakuin Univ. (Japan) ; [David J. Rogers](#), Nanovation (France)**DUV cathodoluminescence in rocksalt-structured MgZnO films** *(Conference Presentation)* *(Invited Paper)*

Paper 11281-52

Time: 4:00 PM - 4:25 PM

Author(s): Takeyoshi Onuma, Mizuki Ono, Kanta Kudo, Kogakuin Univ. (Japan); Kyohei Ishii, Kentaro Kaneko, Shizuo Fujita, Kyoto Univ. (Japan); Honda, Kogakuin Univ. (Japan)

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**Fast optical activation of insulator-to-metal transition in vanadium dioxide (VO₂) phase changed materials**

Paper 11281-53

Time: 4:25 PM - 4:40 PM

Author(s): Aurelian Crunteanu-Stanescu, Jean-Christophe Orlanges, Annie Bessaudou, XLIM (France)

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