

CSW 2021

First Virtual Conference



IPRM 2021

The 32nd International Conference
on Indium Phosphide and Related
Materials



ISCS 2021

The 47th International
Symposium on Compound
Semiconductors

Workbook



WeA2.6 **Germanium-based Dielectric Loaded Plasmonic Waveguides For**
9:45 **The Long-wave Infrared Spectral Range**

Mauro David, Alicja Dabrowska, Masiar Sistani, Ismail Cem Doganlar, Benedikt Schwarz, Hermann Detz, Walter Michael Weber, Bernhard Lendl, Gottfried Strasser, Borislav Hinkov (TU Wien, Austria); Erik Hinkelmann (Brno University of Technology, Czech Republic)

Dielectric loaded plasmonic waveguides are a very efficient link for electronic and photonic devices, facilitating miniaturized on-chip optoelectronic integrated circuits. For longwave infrared applications (8-12 μm) however, the material selection is challenging as most common dielectrics like PMMA or Silica absorb in this wavelength range. In this work, undoped germanium was identified to overcome this limitation and its basic plasmonic properties such as mode propagation length and modal effective area are assessed by numerical simulations at a wavelength of interest of 9.12 μm . In this respect, 1 mm long plasmonic waveguide samples were fabricated and characterized experimentally. The corresponding determined propagation losses are 12 dB/mm.

WeA2.7 **Sb-based Interband Cascade Mid-IR Devices With Top GaAs**
10:00 **Metamorphic Layers**

Daniel Andres D'áz-Thomas, Michael Bahriz, Eric Tournié, Alexei Baranov, Laurent Cerutti (Université de Montpellier, France); Oleksandr Stepanenko, Stephane Calvez, Guilhem Almuneau (LAAS-CNRS, France); Thomas Batte, Cyril Paranthoen, Christophe Levallois (Université de Rennes – INSA, France)

We present two different GaSb based interband cascade devices emitting between 3 and 4 μm containing a metamorphic GaAs layer above the active region. The first structure is a Resonant Cavity Light Emitting Diode with an oxidized Al(Ga)As layer whereas the second structure is an Interband Cascade Laser with a GaAs top cladding.