



Contribution ID: 190

Type: **Talk**

【244】 Hybrid plasmon-phonon surface modes at CdZnO-sapphire interfaces: Grating coupling and applications

Thursday, 2 September 2021 15:15 (15 minutes)

Recently, CdO has been proposed as a very promising material for IR plasmonics due to its high plasma frequency and low damping. However, low propagation lengths and broad minima are common limitations with CdO surface plasmons.

To overcome these limitations, we propose the use of thin high quality crystalline CdZnO layers grown on sapphire substrate. Hybrid surface modes arise from the interaction between the high energy phonons of the sapphire and CdZnO surface plasmons. Here, we design and realize gold gratings to such CdZnO layers and successfully couple mid-IR light with these hybrid modes and discuss their potential applications.

Author: MARTÍNEZ CASTELLANO, Eduardo (Universidad Politécnica de Madrid)

Co-authors: MARSCHICK, Georg (TU Wien); Dr TAMAYO-ARRIOLA, Julen (Universidad Politécnica de Madrid); YESTE, Javier (Universitat de València); Dr MONTES BAJO, Miguel (Universidad Politécnica de Madrid); Prof. MUÑOZ-SANJOSÉ, Vicente (Universitat de València); Prof. STRASSER, Gottfried (TU Wien); HINKOV, Borislav (TU Wien); Prof. HIERRO, Adrián (Universidad Politécnica de Madrid)

Presenter: MARTÍNEZ CASTELLANO, Eduardo (Universidad Politécnica de Madrid)

Session Classification: Surfaces, Interfaces and Thin Films

Track Classification: Surfaces, Interfaces and Thin Films