

**GUIDING PLASMONS WITH SUBWAVELENGTH LATERAL
CONFINEMENT IN THE OPTICAL AND THZ REGIMES**

L. Martin-Moreno

Instituto de Ciencia de Materiales de Aragon y Departamento de Fisica
de la Materia Condensada, CSIC-Universidad de Zaragoza, Spain

The guiding of light within a subwavelength cross section has recently been attracting a great deal of attention because of ever increasing demands for miniaturization of photonic circuits.

In this talk we present theoretical results for the modal shape, dispersion relation and losses of bounded electromagnetic modes in a V-shaped channel in a metal film (the so called Channel Plasmons). It will be shown that modes spatially located closed to the opening of the channel hibrydize with modes appearing at the edges of the channel. These modes, termed Wedge Plasmons will be studied separately in a wedge (the inverse geometry to the V-channel). Strategies for coupling into this modes and for further focusing the electromagnetic field will be discussed.

Finally, the transferring of this ideas to the THz regime will be considered. It will be shown that it is possible to create waveguides for THz electromagnetic waves by proper texturing of a channel or a wedge in a metal.