ABSTRACT

In this work it is done the analysis of the ways of plasmon that developed themselves in a mettalic film that covers an optic and generalized fiber. The studied ways of plasmon are: Cover-Leaky (l_{cv}), Symmetric Bounded (S_b), Core-Leaky (l_{cr}) and Asymmetrical Bounded (a_b). The metallic films, for reason of comparison, used in this work, are: the silver, the gold and the paladium.

It was developed a mathematical model of the electricmagnetic phenomenon and a software, that created a database which could make it easy the analysis of structures with several combinations of parameters.

With the database have been got several graphs that let: analyse the types of plasmon, see the reduction of waves and the behaviour of the electricmagnetic field in each area of the structure.

The confrontations between the structures with films of silver, gold and paladium made it possible to conclude that those elaborated with films of silver and gold are those that present smaller losses, so, are recommended in the confection of sensors. As silver is more accecible than gold it is advisable its utilization.

The analysis and the results of this work are original in the specialized literature.

Key-words: Generalized optical fibers covered by a film metallic, polarized modes (TM_{01}), Helmholtz equation.