

## One Dimensional Magneto-Plasmonic Structure Based On Metallic Nano-Grating

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**Abstract :** Magneto-plasmonic (MP) structures have turned into essential tools for the amplification of magneto-optical (MO) responses via the combination of MO activity and surface Plasmon resonance (SPR). Both the plasmonic and the MO properties of the resulting MP structure become interrelated because the SPR of the metallic medium. This interconnection can be modified the wave vector of surface plasmon polariton (SPP) in MP multilayer [1] or enhanced the MO activity [2- 3] and also modified the sensor responses [4]. There are several types of MP structures which are studied to enhance MO response in miniaturized configuration. In this paper, we propose a new MP structure based on the nano-metal grating and we investigate the MO and optical properties of this new structure. Our new MP structure fabricate by DC magnetron sputtering method and our home made MO experimental setup use for characterization of the structure.

**Keywords :** Magneto-plasmonic structures, magneto-optical effect, nano-garting

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