ABSTRACT

Attestation bachelor work: 87 pages, 27 figures, 9 tables, 30 literature sources.

Purpose of work: to choose a material, on which surface it is possible to make microrelief like a diffraction grating to use it like a demultiplexor.

Object of study: modificated solution of resonance diffraction problem, Drude`s theory, complete extinction of mirror-reflected wave and appearing of plasmon-polyaritons on surface.

Research methods: modeling in MathCad 14 system.

The results and their novelty: it was found that for effective DWDM demultiplexing diffraction grating made of silver is acceptable and for CWDM diffraction grating made of lead is acceptable. The main novelty is the use of Drude theory for the selection of material.

The recommendation to use: considered in the work new types of demultiplexorx are promising devices for using in transmited informational lines, also for researching plasmon-polyaritons appearing fenomenon.

DEMULTIPLEXOR; DEMULTIPLEXING; SURFACE PLASMON-POLYARITON; REAL AND IMAGINE PARTS OF IMPEDANCE FOR METALS; DRUDE`S THEORY; RESONANCE DIFFRACTION PROBLEM; DIFFRACTION SPECRTUMS; IR DIAPASONE.