ABSTRACT

The dissertation reviews the methods of making Bragg gratings. Their properties are discussed. The analysis of research works devoted to these lattices is carried out. A mathematical model of an oblique lattice has been developed using the conjugate mode method. Modeling has been carried out as a result of which the transmission characteristics have been obtained, which are in good agreement with the experimental ones. The study of the effect of temperature on the spectral characteristics of oblique gratings has been carried out. The parameters of these characteristics were selected to analyze the function of their change on temperature.For the obtained results of laboratory studies, the method of least squares was applied to reveal the dependence of the change in the Bragg and host wavelengths on temperature, which appeared to be linear. A metrological analysis of the temperature sensitivity of the parameter changes has been carried out.

Key words: Bragg gratings, oblique Bragg gratings, conjugate mode method, spectral characteristics of oblique gratings, temperature sensitivity.