Polarization properties of second harmonic generation in reflection from the planar G-shaped gold structure

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Diploma thesis abstract

The work is devoted to the experimental study of the polarization properties of the second harmonics generation in reflection from a structural surface. The samples consist of an ordered array of thin gold G-shaped nanostructures. The film thickness was 35nm. The lateral size of each individual motif was $1\mu m$, the line width is 200nm. Method to study the polarization properties of the second harmonic generation was developed. This method is based on Stokes parameters measuring. Experiment was perfomed with a Ti:Sa femtosecond laser at a wavelength of 800nm. Diameter of the focal spot of the laser light was about 800nm by 1/2 level. Two samples was studied at four exciting light polarization states. Polarization state of exciting light was vertical and horizontal linear, left and right circular. Developed method allows to determine polarization state of second harmonic light, generated in reflection from the local plasmon excitation spots. Polarization state difference of second harmonic light for single-periodic and double-periodic samples was found.