holographic microscopy (DHM) and atomic force microscopy (AFM). For the reconstruction of the grating profile from the interferometric image, an iterative numerical algorithm was used. This hologram processing technique provides significant noise suppression if compared to conventional Fourier Transform based techniques, it was proven in [1, 2]. The determined period of surface relief is Λ=5μm. The investigated area was 40μm x40μm that is around 8 periods of the grating. The reconstructed surfaces of the superimposed DG represent regularly spaced hexagonal relief. Both DHM and AFM revealed the symmetrical structure of the modulated relief. Relief depth of hexagonal grating of the polymer film is 1.2μm.

A major potential application of these particular DG could be the laser wavefront manipulation in a digital holographic microscope (DHM) configuration for collecting more information from the spectrum diffracted by the object under investigation, which generally would drop out of the CCD camera [3-5].

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Study of specific heat and Gibb's free energy of ternary chalcogenide glasses

V. K. Saraswat[a] , N. Tanwar[b], Yo. K Saraswat[c]

[a]*Department of Physics, ACC Wing, Indian Military Academy, Dehradun-248007 UK, India*
[b]*Department of Physics, Ahir College, Rewari-123401 Haryana, India*
[c]*Department of Chemistry, SV PG College, Aligarh UP, India*

Corresponding author: vibhav.spsl@gmail.com

In this paper, an effort has been made to study the change in some thermodynamic parameters (say specific heat and Gibb's free energy) of GeSeIn ternary chalcogenide glasses under non-isothermal conditions. Change in specific heat at glass transition temperature is a characteristics feature of glass. Gibb's free energy is used as a criterion for glass stability. Gibb's free energy difference between crystal and glass phase is the

driving force for crystallization. Change in Gibb's free energy provides information about glass stability and glass forming ability. The Difference between T_c & T_g also gives information about glass stability. It has been observed that ΔG increases with the increase of Ge content in $Ge_ySe_{94-y}In_6$ (y=10, 15 & 20) glassy series. The results reveal that the $Ge_{10}Se_{84}In_6$ glass possesses minimum value of ΔG and the maximum value of (T_c-T_g), so, proving itself the most stable composition among the candidates of the series under test.

Laser induced shanges of structure and optical properties of As-Sb-S amorphous films

M.O. Durkot[1], A.A. Kryuchyn[1], L.I. Makar[1], O.A. Mykaylo[1], V.V. Petrov[1], M.M. Pop[1,2], V.M. Rubish[1], T.I. Yasinko[1], R.M. Holomb[3], S.O. Kostiukevich[4]

[1]*Institute for Information Recording, NAS of Ukraine, 2, Shpak Str., 03113 Kyiv, Ukraine,*
[2]*Uzhhorod National University, 3, Narodna sq., Uzhhorod 88000, Ukraine*
[3] *Wigner Research Centre for Physics, Hungarian Academy of Sciences, 1121 Budapest, Hungary,*
[4]*V. Lashkaryov Institute of Semiconductor Physics, NAS of Ukraine, 41, Prosp. Nauky, 03028 Kyiv, Ukraine*

Corresponding author: petrov@ipri.kiev.ua; misha_pop@i.ua; holomb@ukr.net; sergeyk@isp.kiev.ua

The report is devoted to the studies of laser irradiation and annealing influence on the optical characteristics and Raman spectra of $As_{40-x}Sb_xS_{60}$ ($0 \le x \le 12$) amorphous films prepared by the thermal evaporation of glasses of corresponding compositions and process laser writing of information elements on the surface of films with high sensitivity.

It is established that the laser irradiation and annealing of films leads to an absorption edge shift into the long-wave spectral region. The values of pseudoforbidden gap width E_g and refractive index n of films have been determined. The parameters of a single-oscillator model (oscillator energy E_0, dispersion energy E_d, and effective coordination number per cation N_c) for the studied films are estimated. The maximum changes in optical characteristics are found for films with x=4 and 6. Changes in the optical parameters of films are caused by structural transformations taking place in them under the irradiation and annealing. It was established that the laser irradiation of $As_{40-x}Sb_xSe_{60}$ films leads to the breaking and switching of As-As and S-S bonds in As_4S_4, As_4S_3, and S_n type structural fragments. accompanied with the formation of structural units with heteropolar bonds As-S (AsS_3). The role of a particular type of structural defects with over- and subcoordinated atoms of As and S is discussed.

The light exposure of inorganic photoresists $As_{40-x}Sb_xS_{60}$ with *x=4* and 6 was carried out on the laser writing station. To obtain the relief micro-images on these inorganic photoresists we used some sort of anhydrous selective etchants based on amines. Shape control of the formed structure was provided by an atomic force microscope. Executed experiments on the lithographic recording by the 405 nm wavelength illumination using a focusing lens with aperture of 0.85 in these films have showed the possibility of obtaining the information elements ~ 150-300 nm.