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# Prospects of ion-beam formation of nanoscale surface roughness

© E.V. Odinkova, Yu.V. Panfilov, P.I. Yurchenko

Bauman Moscow State Technical University, Moscow, 105005, Russia

*Prospects of formation of nanoscale surface roughness using ion-beam processing are studied. It is necessary for producing optical systems components, such as mirrors for laser gyroscopes, lenses and mirrors for telescopes e t.c., with surface roughness of about 1...4 nm. Results of theoretical researches into changing of materials sputtering coefficient during their ion-beam processing in dependence of surface microimperfections profile and ions incident angle are presented. Methods of experimental investigations which take into account received theoretical dependences and which are conducted for different energy characteristics of ions beam and for different time of processing are described. Glassceramics wafer surface relief was investigated with "Solver Next" atomic force microscope before ion-beam processing and after it had been processed with beam of ions with energies of 1 and 3 keV directed under different angles. The results of the investigations are presented in the article. The example of how the results of surface microrelief measuring taken by probe microscopes look like in relative units after computer processing of scans is demonstrated.*

**Keywords:** *atomically smooth surface, ion-beam processing, sputtering coefficient, ions incident angle.*

**Odinkova E.V.**, a student of the Electronic Technologies in Mechanical Engineering department of Bauman Moscow State Technical University.

**Panfilov Yu.V.** graduated from Bauman Moscow Higher Technical School in 1972. Dr. Sci. (Eng.), Professor, Head of the Electronic Technologies in Mechanical Engineering Department of Bauman Moscow State Technical University. Specializes in the field of vacuum manufacturing equipment, nanotechnologies. e-mail: panfilov@bmstu.ru

**Yurchenko P.I.**, a post-graduate of the Electronic Technologies in Mechanical Engineering Department of Bauman Moscow State Technical University.

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