

Calculation of the thickness of a thin film during deposition using its optical parameters

M. A. Kononov and S. F. Rastopov

Prokhorov General Physics Institute of the Russian Academy of Sciences
38 Vavilov st., Moscow, 119991, Russia
E-mail: mail: mike@kapella.gpi.ru

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Based on the surface plasmon resonance method, a technique for measuring the thickness of a growing metal film has been developed. The work uses a numerical modeling method and the creation on its basis in the LabView environment of a control program to control the growth process of a metal film based on its optical parameters. It is shown that the method is suitable for use in controlling the process of producing films with repeatable optical properties. By exciting plasmon polariton waves on the surface of the film and recording the resonant interaction of surface plasmons with a surface electromagnetic wave, a response is obtained in the form of an optical signal. Analysis of the characteristics of the resonant response makes it possible to correct the course of the deposition process film.

Keywords: plasmon resonance, magnetron sputtering, thin films.

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