



Contribution ID: 60

Type: Invited Oral

X-ray photoelectron spectroscopy as a tool for control superlattice heterostructures quality and surface bilayer formation

Monday, 13 August 2018 11:50 (20 minutes)

X-ray Photoelectron Spectroscopy (XPS) is probably the most widely used surface analysis technique. Using it, it is possible not only to determine the chemical composition of a given material, but also concentrations of all elements forming it. Additionally, XPS is very useful to ascertain the thickness of adlayer deposited on any kind of solid state substrate. The depth from which the information arise is typically not larger than 10 nm. This makes XPS especially suitable in nanotechnology applications.

In this talk it will be shown how, using XPS:

- a quality of superlattice heterostructures produced,
- progress of a surface bilayer formation (e.g. double layer of graphene on SiC surface or bilayer of Ga on GaN),
- thickness of the deposited adlayer when a surface bilayer is formed (e.g. during thermal treatment) on superlattice substrate, can be determined.

The given formula can be easily extended to more complicated compounds which makes them very useful in practical applications.

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Session Classification: Speaker Sessions and Seminars

Track Classification: IUVSTA Highlight Seminars