



Studien-/Bachelorarbeit

Suitability of low-melting point alloys for use as sputter targets

In collaboration with the Fraunhofer FEP the Institute of Solid State Electronics is developing a new variety of magnetron sputtering to expand its use in semiconductor manufacturing; of particular interest are alloys of the aluminium-gallium-indium-nitride system. However, due to the low melting point of the binary alloys that are used as base material in the process, it has not been able to establish itself as viable.

The aim of this work is to assess the suitability of these binary metal alloys as a base material (target) for the sputtering process. This includes their manufacture as well as their thermal properties.

Provided that the experiments are successful, the results will be submitted for publication in a scientific journal.

Tasks

- Literature search regarding the alloy formation of aluminium, gallium, and indium as well as the properties of the alloys
- Manufacturing of alloy samples and preparing them for characterisation
- Characterisation of composition and microstructure
- Measurement of electrical and thermal characteristics
- Simulation of the thermal behaviour under process conditions
- Evaluation of the results with regard to the suitability of the alloys for sputtering

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