Sonderseminar

Donnerstag, 12. Juli 2012
10:30 Uhr
ZNN, Seminarraum EG 0.001

“CVD diamond growth and impurity doping for diamond bipolar junction applications”

P- and n-type doped diamond films and combinations can be applied for a variety of electronic and opto-electronic applications. To achieve success a comprehensive knowledge of the doping technology and related analysis techniques are required. For p-type doping, the impurity boron is easily incorporated into both natural and synthesis diamonds, whereas n-type diamond, which is not present in nature, has been recently established by phosphorus doping. These progresses in p- and n-type doping in diamond semiconductor have stimulated much research on the various types of p-n junction devices, bringing diamond closer to the future electronic applications.

The details of homoepitaxy growth and impurity doping in single crystal diamond are summarized, focusing on the heavily doping over $10^{20} \text{ cm}^{-3}$. The electrical properties, contact metallization, and bipolar junction devices are also discussed.

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