

POZVÁNKA

na seminář oddělení 15 Fyzikálního ústavu AV ČR, v.v.i.

Seminář se koná

ve středu 23. března 2016 ve 13:00

v zasedací místnosti budovy A (vedle knihovny) Fyzikálního ústavu,
Cukrovarnická 10, Praha 6.

Na programu je přednáška o článku Scientific Reports 6:20641, (2016)
ze série Journal Club

Positron annihilation spectroscopy of defects in CdTe

kterou prosloví

Lukáš Šedivý

MFF UK

Abstrakt

Positron annihilation spectroscopy was used to examine the effect of defined Cd-rich and Te-rich annealing on point defects in Cl-doped CdTe and Ge-doped CdZnTe semi-insulating single crystals. The as-grown crystals contain open-volume defects connected with Cd vacancies (V_{Cd}). It was found that the Cd vacancies agglomerate into clusters coupled with Cl in CdTe:Cl, and in CdZnTe:Ge they are coupled with Ge donors. The CdTe:Cl contains negatively-charged shallow traps interpreted as Rydberg states of $(V_{\text{Cd}}\text{Cl}_{\text{Te}})\text{A}$ -centres and representing the major positron trapping sites at low temperature. Positrons confined in the shallow traps exhibit lifetime which is shorter than the CdTe bulk lifetime; this is contrary to the common notion that shorter lifetimes of positrons occur in the bulk [2]. Interpretation of these experiments was successfully combined with electrical resistivity, Hall effect measurements and chemical analysis.

[1] L. Šedivý et al., Sci. Rep. 6:20641 (2016). doi: 10.1038/srep20641.

[2] K. Krause-Rehberg and H.S. Leipner, Positron Annihilation in Semiconductors, vol. 127 of Springer Series in Solid-State Sciences (1999).