

Title (en)

MULTIBAND SEMICONDUCTOR COMPOSITIONS FOR PHOTOVOLTAIC DEVICES

Title (de)

MEHRBAND-HALBLEITERZUSAMMENSETZUNGEN FÜR PHOTOVOLTAISCHE BAUELEMENTE

Title (fr)

COMPOSITIONS DE SEMI-CONDUCTEURS MULTIBANDE POUR DISPOSITIFS PHOTOVOLTAIQUES

Publication

EP 1695388 A2 20060830 (EN)

Application

EP 04817004 A 20041129

Priority

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- US 52621003 P 20031201

Abstract (en)

[origin: WO2005055285A2] The highly mismatched alloy $\text{Zn}_{1-y}\text{MnyOxTe}_{1-x}$ $0 \leq y < 1$ and $0 < x < 1$ and other Group II-IV-Oxygen implanted alloys have been synthesized using the combination of oxygen ion implantation and pulsed laser melting. Incorporation of small quantities of isovalent oxygen leads to the formation of a narrow, oxygen-derived band of extended states located within the band gap of the $\text{Zn}_{1-y}\text{MnyTe}$ host. With multiple band gaps that fall within the solar energy spectrum, $\text{Zn}_{1-y}\text{MnyOxTe}_{1-x}$ is a material perfectly satisfying the conditions for single junction photovoltaics with the potential for power conversion efficiencies surpassing 50%.

IPC 8 full level

H01L 29/00 (2006.01); **H01L 31/0296** (2006.01); **H01L 31/0304** (2006.01); **H01L 31/068** (2012.01)

IPC 8 main group level

H01L (2006.01)

CPC (source: EP)

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Citation (search report)

See references of WO 2005055285A2

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