

## 文献数

Ochoa-Martínez, E., Barrutia, L., Ochoa, M., Barrigón, E., García, I., Rey-Stolle, I., Algora, C., Basa, P., Kronome, G., Gabás, M. **Refractive indexes and extinction coefficients of n- and p-type doped GaInP, AlInP and AlGaInP for multijunction solar cells** (2018) *Solar Energy Materials and Solar Cells*, 174, pp. 388-396.

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**抄録 (Abstract)**

The optical properties of p-type, n-type and nominally undoped  $(\text{Al}_x\text{Ga}_{1-x})\text{In}_{1-y}\text{P}$  layers have been determined in a wide spectral range. The layers under study have been chosen with compositions and dopant concentrations which make them interesting for their use in III-V multijunction solar cells. The layers have been measured by variable angle spectroscopic ellipsometry and, irrespective of composition and doping, their optical response has been modelled using the same model dielectric function consisting of two asymmetric Tauc-Lorentz oscillators and a 3D-M0 Adachi term. The results show that transition energy values change with layer composition, whilst for layers of the same material (i.e. GaInP or AlInP), the band-gap transition energy  $E_0$  shows a strong dependence on the order parameter. The refractive indexes and extinction coefficients deduced from the ellipsometric data have been used to fit reflectance measurements for the same layers and an excellent agreement has been achieved, thus validating the model dielectric function proposed for this kind of materials. © 2017 Elsevier B.V.

**著者キーワード**

Doped-GaInP (-AlInP, -AlGaInP); III-V semiconductor layers; Multijunction solar cells; Order parameter; Spectroscopic ellipsometry

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