



Optica Applicata 2006(Vol.36), No.2-3, pp. 311-320

## High resolution and analytical electron microscopy of ZnO layers doped with magnetic ions for spintronic applications

*M. Abouzaid, P. Ruterana, C. Liu, H. Morkoc*

SEARCH

[Advanced search](#)

[About Optica Applicata](#)

[Current issue](#)

[Browse archives](#)

[Search](#)

[Editorial Board](#)

[Instructions for Authors](#)

[Ordering](#)

[Contact us](#)

### Keywords

ZnO, transmission electron microscopy, ferromagnetism, manganese doping, spintronics, sputtering, Mn rich precipitates

### Abstract

We have investigated the effect of temperature on the crystalline quality of (Zn, Mn)O thin films prepared by rf magnetron sputtering using *c*-plane sapphire substrates. The layers comprised an Mn doped part towards the surface on top of about a 150 nm pure ZnO layer. They exhibit a columnar structure depending on the deposition temperature; the adjacent domains are rotated from one another by 90°, putting [1010] and [1120] directions face to face. At high Mn concentration this columnar structure is blurred by the formation of Mn rich precipitates for which we report on the structure, composition and crystallographic relationships with the surrounding matrix.



1.1 MB

[Back to list](#)

© Copyright 2007 T.Przerwa-Tetmajer All Rights Reserved 2007

**stat4u**

