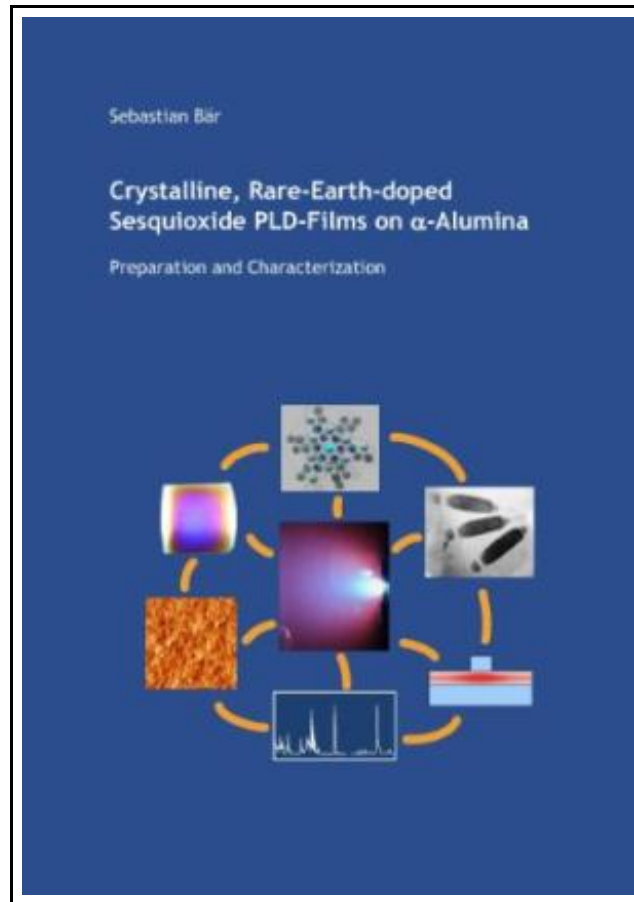


Crystalline Rare-Earth-doped Sesquioxide PLD-Films on alpha-Alumina



Filesize: 4.43 MB

Reviews

These types of publication is the greatest publication readily available. It is among the most amazing book i have study. Your lifestyle span will be convert as soon as you complete reading this pdf.
(Mrs. Cheyenne Dibbert)

CRYSTALLINE RARE-EARTH-DOPED SESQUIOXIDE PLD-FILMS ON ALPHA-ALUMINIA



Cuvillier Verlag Jul 2004, 2004. Taschenbuch. Book Condition: Neu. 208x146x4 mm. Neuware - The development of integrated optical devices demands the fabrication of high-quality optically active thin films. This work focuses on thin sesquioxide films, which are promising because the sesquioxides are well-known hosts for rare-earth-ions, leading to luminescent materials and solid-state lasers with superior mechanical and thermal properties (e. g. low phonon energies, large thermal conductivity).Optical quality crystalline thin films of rare-earth-doped sesquioxides (yttria, lutetia, and scandia) have been grown by the pulsed laser deposition (PLD) technique on single-crystal (0001) α -alumina substrates. Alumina substrates offer a lattice constant that matches that of cubic Y2O3 in the $\beta_{111\pm}$ direction very well. Using Lu2O3 and Sc2O3, the mismatch of 4.8% related to Y2O3 on alumina substrates can be considerably reduced leading to the production of films with less dislocations.The crystal structure of these films (thicknesses from 1 nm to 500 nm) was determined by X-ray diffraction (XRD) and surface X-ray diffraction (SXRD) analysis. These measurements show that the films were textured along the $\beta_{111\pm}$ direction, however with a small polycrystalline component, which is negligible in thick films. Using Rutherford backscattering analysis (RBS), the correct stoichiometric composition of the films could be proved. At optimum growth conditions, epitaxial growth of Y2O3 along the $\beta_{111\pm}$ direction on the (0001) α -Al2O3 was experimentally verified by the observation of channelling in the RBS experiments.The surface morphology of the thin films has been studied using atomic force microscopy (AFM). While amorphous films have no defined surface structure, crystalline films show a triangular surface morphology, which is attributed to the $\beta_{111\pm}$ growth direction. The same structure is observed along the (111) cleavage of an yttria bulk crystal. Thin films with a mean thickness of 5 nm have no completely covered surface, but show island growth, where the...



[Read Crystalline Rare-Earth-doped Sesquioxide PLD-Films on alpha-Alumina Online](#)



[Download PDF Crystalline Rare-Earth-doped Sesquioxide PLD-Films on alpha-Alumina](#)

Related Books



The Preschool Inclusion Toolbox: How to Build and Lead a High-Quality Program

Brookes Publishing Co, United States, 2015. Paperback. Book Condition: New. 274 x 213 mm. Language: English . Brand New Book. Filled with tips, tools, and strategies, this book is the comprehensive, practical toolbox preschool administrators...

[Save Book »](#)



Oxford Reading Tree Read with Biff, Chip and Kipper: Phonics: Level 2: A Yak at the Picnic (Hardback)

Oxford University Press, United Kingdom, 2014. Hardback. Book Condition: New. Mr. Nick Schon (illustrator). 177 x 148 mm. Language: English . Brand New Book. Read With Biff, Chip and Kipper is the UK's best-selling...

[Save Book »](#)



Daddyteller: How to Be a Hero to Your Kids and Teach Them What's Really by Telling Them One Simple Story at a Time

Createspace, United States, 2013. Paperback. Book Condition: New. 214 x 149 mm. Language: English . Brand New Book ***** Print on Demand *****.You have the power, Dad, to influence and educate your child. You can...

[Save Book »](#)



Simple Signing with Young Children : A Guide for Infant, Toddler, and Preschool Teachers

Book Condition: Brand New. Book Condition: Brand New.

[Save Book »](#)



Index to the Classified Subject Catalogue of the Buffalo Library; The Whole System Being Adopted from the Classification and Subject Index of Mr. Melvil Dewey, with Some Modifications .

Rarebooksclub.com, United States, 2013. Paperback. Book Condition: New. 246 x 189 mm. Language: English . Brand New Book ***** Print on Demand *****.This historic book may have numerous typos and missing text. Purchasers can usually...

[Save Book »](#)