

## Solid State and Superconductivity Abstracts

### FILE DESCRIPTION

**Solid State and Superconductivity Abstracts** provides unparalleled current research and applications across the field of physics and conductivity. Over 3,000 serial titles and hundreds of non-serial publications are indexed and abstracted by expert Cambridge Scientific Abstracts staff. The database covers all aspects of theory, production, and application of solid state materials and development as well as the new high- and low-temperature superconductivity technology. Topics covered include phase, crystal, and mechanical properties of solids, optical and dielectric properties, conductive and magnetic properties, electronic structure and energy gaps, SQUIDS, impurity effects, flux structure, critical current, ceramics, twinning phenomena, and more.

### SUBJECT COVERAGE

Major areas of coverage include:

- Applied Physics
- Atomic and Molecular Physics
- Condensed Matter Physics
- Plasma Physics
- Nuclear and High-Energy Physics
- Mathematics of Physics
- Superconductors
- Semiconductors
- Solid State Milieux

### SOURCES

Solid State and Superconductivity Abstracts includes information abstracted from over 3,000 scientific and technical journals, government reports, conference proceedings, dissertations, books, and other publications. The database corresponds to the print *Solid State and Superconductivity Abstracts*.

### TIPS

#### USE FILE 68

to search for abstracted articles relating to all aspects of physics.

#### USE /TI AND /DE

for precise subject searching:

S QUANTUM(W)EFFICIENCY/TI,DE

#### USE SUBJECT HEADINGS or

#### SUBJECT HEADING CODES

to narrow a search to a topic.

S COMPOUND(W)SEMICONDUCTORS/SH

S SC=P4

#### USE RANK

to find experts working in an area of interest.

S LASER DIODE?

RANK AU

### DIALOG FILE DATA

Inclusive Dates: 1968 to the present

Update Frequency: Monthly

File Size: Over 254,184 records as of July 2005

### CONTACT

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## SAMPLE RECORD

DIALOG(R)File 68: Solid State & Super. Abs  
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**AA=** 0000016434 IP ACCESSION NO: 200504-82-08914  
**/TI** Zinc oxide - analogue of GaN with new perspective possibilities  
**AU=** Karpina, V A; Lazorenko, V I; Lashkarev, C V; Dobrowolski, V D; Kopylova, L I; Baturin, V A; Pustovoytov, S A; Karpenko, A J; Eremin, S A; Lytvyn, P M  
**CS=** Institute for Problems of Material Science, National Academy of Sciences of Ukraine, 3, Krzhyzhanovsky str., Kyiv, 03142, Ukraine  
**JN=,SO=,PD=** Crystal Research and Technology, v 39, n 11, Nov. 2004  
**PAGES:** 980-992  
**PY=** PUBLICATION DATE: 2004

**PU=** PUBLISHER: Wiley-VCH Verlag GmbH, P.O. Box 10 11 61, Weinheim, D-69451  
**CP=** COUNTRY OF PUBLICATION: Germany  
 PUBLISHER URL: <http://www.interscience.wiley.com>  
 PUBLISHER EMAIL: [cs-journals@wiley.co.uk](mailto:cs-journals@wiley.co.uk)

**DT=** DOCUMENT TYPE: Journal Article  
**RT=** RECORD TYPE: Abstract  
**LA=** LANGUAGE: English  
**SN=** ISSN: 0232-1300  
 NOTES: Numerical Data; Spectra; Diffraction Patterns; Graphs  
 NO. OF REFS.: 25  
 DOI: 10.1002/crat.200310283

**FS=** FILE SEGMENT: Solid State & Superconductivity Abstracts

**/AB** ABSTRACT:  
 Zinc oxide due to specific electrical, optical and acoustic properties is the important semiconductor material, which has many various applications. There is growing interest in ZnO due to its potential applicability for optoelectronic devices such as light-emitting diodes, laser diodes and detectors for UV wavelength range. ZnO properties are very close to those of widely recognized semiconductor GaN. The band gap of ZnO (3.37 eV) is close to that of GaN (3.39 eV) but ZnO exciton binding energy (60 meV) is twice larger than that of GaN (28 meV). Optically pumped UV lasing have been demonstrated at room temperature using high textured ZnO films. The excitonic gain close to 300 cm<sup>-1</sup> was achieved. ZnO thin films are expected to have higher quantum efficiency in UV semiconductor laser than GaN. The physical properties of ZnO are considered. PEMOCVD technology was used to deposit piezoelectric and highly transparent electroconductive ZnO films. Their properties are discussed. The experiments on polycrystalline ZnO films deposited by RF magnetron sputtering at different partial pressure of oxygen are presented. AFM images were studied in tapping mode for deposited films. The investigated films were dielectric ones and had optical transparency within 65-85% at thickness in the interval 0.2-0.6 μm.

**/DE** DESCRIPTORS: Zinc oxides; Gallium nitrides; Semiconductors; Electric potential; Binding energy; Light-emitting diodes; Quantum efficiency; Laser diodes  
**SC=,SH,SH=** SUBJ CATG: 82, Compound Semiconductors

## SEARCH OPTIONS

## BASIC INDEX

SEARCH SUFFIX	DISPLAY CODE	FIELD NAME	INDEXING	SELECT EXAMPLES
—	—	All Basic Index Fields	Word	S SEMICONDUCTOR(W)MATERIAL
/AB	AB	Abstract	Word	S ZINC(W)OXIDE/AB
/DE	DE	Descriptor <sup>1</sup>	Word & Phrase	S ZINC(W)OXIDES/DE S BINDING ENERGY?/DE
/ID	ID	Identifier	Word & Phrase	S EXTRUSION/ID S HEAT TRANSFER/ID
/SH	SH	Subject Category <sup>2</sup>	Word	S COMPOUND(W)SEMICONDUCTORS/SH
/TI	TI	Title	Word	S ZINC(W)OXIDE/TI

<sup>1</sup> Also /DF.<sup>2</sup> Searchable in the Basic Index and in the Additional Indexes.

## ADDITIONAL INDEXES

SEARCH PREFIX	DISPLAY CODE	FIELD NAME	INDEXING	SELECT EXAMPLES
AA=	AA	CSA Accession Number	Phrase	S AA=200504-82-08914
AU=	AU	Author	Phrase	S AU=KARPINA, V?
—	AZ	DIALOG Accession Number		
BN=	BN	International Standard Book Number (ISBN)	Phrase	S BN=0-8194-1083-7 S BN=081910837
CD=	CD	Conference Date	Phrase	S CD=20040126
CL=	CL	Conference Location	Word	S CL=(SAN(W)JOSE)
CP=	CP	Country of Publication	Phrase	S CP=USA S CP=NEW ZEALAND
CS=	CS	Corporate Source	Word & Phrase	S CS=(MATERIAL(S)SCIENCE) S CS=INSTITUTE FOR PROBLEMS?
CT=	CT	Conference Title	Word	S CT=(ULTRAFAST(W)PHENOMENA)
CY=	CY	Conference Year	Phrase	S CY=2004
DT=	DT	Document Type	Phrase	S DT=JOURNAL ARTICLE
FS=	FS	File Segment	Phrase	S FS=SOLID STATE & SUPERCONDUCT?
—	II	Digital Object Identifier		
JN=	JN	Journal Name	Phrase	S JN=CRYSTAL RESEARCH?
LA=	LA	Language	Phrase	S LA=GERMAN
MC=	MC	Materials Classification	Phrase	S MC=ALUMINUM BASE ALLOY?
ML=	ML	Materials	Phrase	S ML=AL-4CU
NO=	NO	Document Number	Word & Phrase	S NO=NUREG S NO="NUREG/CP-0029"
—	NR	Number of References		
—	NT	Note		
PD=	PD	Publication Date	Phrase	S PD=20041100
PU=	PU	Publisher	Word	S PU=WILEY?
PY=	PY	Publication Year	Phrase	S PY=2004
RN=	RN	Report Number	Word & Phrase	S RN=5383 S RN=SPIE VOLUME 5383
RT=	RT	Record Type	Phrase	S RT=ABSTRACT
SC=	SC	Subject Category	Phrase	S SC=82
SH=	SH	Subject Category Text <sup>2</sup>	Phrase	S SH=COMPOUND SEMICONDUCTOR?
SN=	SN	International Standard Serial Number (ISSN)	Phrase	S SN=0232-1300
SO=	SO	Source Information	Word	S SO=(CRYSTAL(S)TECHNOLOGY)
UD=	—	Update	Phrase	S UD=9999

**SPECIAL FEATURES**

For command descriptions, enter HELP LIMIT, HELP SORT, HELP RANK, HELP DUP, HELP CURRENT online.

<b>LIMIT</b>	/ABS -- Record has an Abstract /NOABS -- Record is a Citation Only Record /YYYY -- Publication Year	S S3/ABS S S3/NOABS S S2/2004
<b>SORT</b>	AA, AU, CS, JN, PY, TI	SORT S3/ALL/PY/D SORT S1/ALL/TI
<b>RANK</b>	All phrase- and numeric-indexed fields in the Additional Indexes can be ranked.	RANK DE RANK AU S4
<b>RD, ID</b>	Remove duplicates (RD) or identify duplicates (ID,IDO).	RD S5
<b>CURRENT</b>	Search only the most recent year plus one (CURRENT1) to five (CURRENT5) years.	B 68 CURRENT2

**PREDEFINED FORMAT OPTIONS**

NO.	DIALOGWEB FORMAT	RECORD CONTENT
1	--	DIALOG Accession Number
2	--	Full Record except Abstract
3	Medium	Bibliographic Citation
4	--	Full Record with Tagged Fields
5	--	Full Record
6	Short	Title and Publication Year
7	Long	Bibliographic Citation and Abstract
8	Free	Title, Indexing, and Publication Year
9	Full	Full Record

**OTHER OUTPUT OPTIONS**

For an explanation, enter HELP TYPE, HELP UDF, HELP TAG online.

<b>USER DEFINED FORMATS</b>	Display codes listed in the Search Options tables can be used to customize output.	TYPE S3/AU,TI/1-5 PRINT S2/TI,AB/ALL
<b>TAG</b>	Output can be displayed with tags identifying each display field.	TYPE S2/5/1-5 TAG PRINT S3/9/ALL TAG
<b>DIRECT RECORD ACCESS</b>	If the accession number of a specific record is known, it can be used to display the record directly.	TYPE 0726149/5 DISPLAY 0074483/AU,TI PRINT 0301964/9

**FOR ONLINE HELP:**

See HELP FIELDS 68 for searchable fields; HELP FORMAT 68 for output formats; HELP LIMIT 68 for limits; HELP RATES 68 for cost information; HELP SORT 68 for sorts.