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WEMA® Materials

This database contains references with abstracts, keywords and descriptors on materials. It provides information from German and international scientific and practical technical literature like journals, conference proceedings, reports, dissertations, as well as non-conventional literature.

The abstracts are in German and/or English. The search may be conducted with German or English terms.

Scope

Materials

- Steel and iron alloys
- Non-ferrous metals, special metals, alloys, amorphous metals
- Metallic foams
- Non-metallic inorganic materials (ceramic, glass, semiconductors)
- Construction materials, natural and artificial minerals and stone
- Magnetic and piezoelectric materials
- Polymers
- Bio-degradable materials, bio-compatible materials, absorbable materials, biomaterials
- Derived timber products
- Composite materials (fiber reinforced materials, particle reinforced materials, coatings)
- Layers / coatings
- Aerogel / xerogel
- Shape-memory materials

Subjects

- Materials production, foundry technology , metallurgy
- Materials development
- Materials science, materials physics
- Computer simulation / computer modelling
- Properties and applications
- Destructive and non destructive testing
- Surface finishing
- Joining technologies, brazing technologies
- Rapid Prototyping
- Sol-Gel-Method
- Corrosion, rheology, tribology
- Heat treatment, surface finishing
- Analysing and measurement methods, standardization
- Materials winning management

Language

German, English

File Data

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Years covered: from 1979

Update: weekly

Producer

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Database

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Title

Processing and mechanical behavior at elevated temperatures of directionally solidified proton conducting perovskites.

Descriptors

amorphe Phase; Ceroxid; Dehnungsgeschwindigkeit; Druckfestigkeit; Druckprüfung; elektrotechnische Keramik; gerichtete Erstarrung; Hochtemperaturbrennstoffzelle; Hochtemperatureigenschaft; Keramikherstellung; Laserschmelzen; Perowskitstruktur; Protonenleitfähigkeit; Rekristallisationstextur; Röntgenbeugung; Strontiumtitanat; Texturanalyse; Ytterbiumoxid; Yttriumoxid; Zonenschmelzen

Free Terms

protonenleitende Perowskitkeramik; Bariumcerat; Calciumstrontiumniobat; Laserzonenschmelzen; Hochtemperaturkeramik

Abstract

High-temperature proton conducting perovskite oxides have been fabricated by directional solidification using a laser-heated floating zone (LHFZ) method. Several families of compositions were selected: $\text{SrCe}_{1-x}\text{Y}_x\text{O}_{1-\delta}$ (with $x = 0.1, 0.2$), $\text{BaCe}_{1-x}\text{M}_x\text{O}_{1-\delta}$ (with $M = \text{Y, Yb and Ca}$; $x = 0.05, 0.2$), $\text{Sr}_3\text{Ca}_{1.18}\text{Nb}_{1.82}\text{O}_{9-\delta}$, $\text{SrZr}_{0.8}\text{Y}_{0.2}\text{O}_{3-\delta}$ and $\text{SrTi}_{0.95}\text{Sc}_{0.05}\text{O}_{3-\delta}$. The resulting microstructures were characterized by electron microscopy and X-ray diffraction. The compounds exhibit a singular microstructure consisting of strongly textured crystalline cells surrounded by an intercellular amorphous phase. Compressive mechanical tests were performed at elevated temperatures in

air at constant strain rate to evaluate the creep resistance. The results are discussed in terms of ionic radius, degree of aliovalence and content of dopant cations.

Author

Lopez-Robledo, M.J.; Vaquero-Aguilar, C.; Martinez-Fernandez, J.; Pena, J.I.; Sayir, A.; Jimenez-Melendo, M.

Institution

Universidad de Sevilla, ES; Universidad de Zaragoza, ES; NASA Glenn Research Center, Cleveland, OH, US

Conference Details

Directionally Solidified Eutectic Ceramics and Advanced Ceramics Workshop, 3rd, Sevilla, ES, 2009-11-11 - 2009-11-13
publiziert als: 3rd Directionally Solidified Eutectic Ceramics and Advanced Ceramics Workshop, Sevilla, ES, Nov 11-13, 2009

Source

Directionally Solidified Eutectic Ceramics and Advanced Ceramics Workshop, 3, in: Journal of the European Ceramic Society * Band 31 (2011) Heft 7, Seite 1339-1344 (6 Seiten, 7 Bilder, 33 Quellen)

Serial Codes

ISSN: 0955-2219
Zeitschriftencode: 7066 = Journal of the European Ceramic Society
Konferenznummer: 29359 = International Workshop on Directionally Solidified Eutectic Ceramics

Classification

3ELB Electric energy storage devices, direct energy conversion
3LEM Production/processing of non-metallic inorganic materials
3KGG Ceramic/refractory materials, glass ceramics
3KXM Mechanical properties of materials

Language

EN English

Availability

<http://dx.doi.org/10.1016/j.jeurceramsoc.2010.05.022>

Document Number

20110502390

Treatment Codes

A Application
G General Review

Chemical Index

SrCe(1-x)Y(x)O(1-y); BaCe(1-x)Y(x)O(1-y); Sr₃Ca(1.18)Nb(1.82)O(9-y); SrZr(0.8)Y(0.2)O(3-y); SrZr(0.8)Yb(0.2)O(3-y); SrZr(0.8)Ca(0.2)O(3-y); SrTi(0.95)Sc(0.05)O(3-y)

Publication Type

J Journal

CA Conference Paper

Publication Form

ED Digital Object Identifier (DOI)

Publication Year

2011

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Database Fields [TOP](#)

Title	TI
Author	AU
Institution	CO
Thesaurus	TH
Descriptors	DE
Classification	CC
Source	SO
Serial Codes	SC
Conference Details	CF
Language	LG
Publication Type	PT
Publication Form	PF
Abstract	TX
Material Terms	MT
Material Index	MI
Chemical Index	CI
Free Terms	FT
Treatment Codes	TC
Fulltext	AV
Document Number	NO
Publication Year	YR
Update	UP
Country of Institution	COC
Conference Series No = Konferenzseriennummer	CSN
Country of Conference	CFC
WTI Journal Code = WTI-Zeitschriftencode	FJC

Search Tips [TOP](#)

Thesaurus

The search with descriptors from the "Thesaurus Engineering and Management" in the search field "General Search" automatically includes any available German terms and narrower terms, as well as German and English synonyms. With the **Thesaurus Search** (see grey menu bar) it is possible to preselect search terms for a more efficient search in the database.

*Attention: The Thesaurus Search Engine is available in every single database. But as not all general data bases have a Thesaurus search function available, we are not able to provide this option when **OneSearch** is used for interdisciplinary data base research.*

Search in specific fields

The "General Search" includes the following fields: Title, Abstract, Author, Institution, Source, Serial Codes (ISSN and ISBN), Conference Details, Thesaurus, Free Terms and Publication Year. In all other cases the respective field has to be selected. In the "Expert Search" every field can be selected from the dropdown-list, or you can directly enter the field tag (in capital letters, #tags see above) followed by colon and the search term, e.g. the classification CC:3BFB. The direct search with field tag is possible in all search types (Quick Search, Advanced Search and Expert Search).

Field Author (AU)

In the database TEMA and its parts (e.g. DOMA, WEMA, ZDE, BEFO etc.) it is sufficient to enter the first letters of first or last name of an author into the Author Field (in "Advanced Search" or "Expert Search"). You will then be given a list of matching entries, from which you can select the appropriate name.

Alternatively names may be searched with truncation (*), e.g. `hoyer*` returns `hoyer-ina`, `hoyer-n-j`, `hoyer-norbert`, `hoyerberg`, `hoyermann` etc.

For a more precise search, please truncate at the initial of the first name, e.g. `"hoyer n*"` returns only authors with last name Hoyer, whose first names start with "N", as Hoyer, Niklas or Hoyer, Norbert. or Hoyer, N. Search names within quotation marks, e.g. `"hoyer norbert"` OR `"hoyer n*"` (last name - first name) and always use the Author Field. This way of searching is possible in all databases. Truncation is recommended, since first names are often abbreviated in the literature quoted.

Field Institution (CO)

This field supplies the author affiliation. Wherever possible, these institutions have been standardised and can be used for refining the search result. Changes in company names should be taken into account (e.g. DaimlerChrysler -> Daimler). The country of the institution is searchable with the tag COC (in capital letters) and the two-character ISO-Country-Code, e.g. `COC:cn` finds institutions from China.

Classification Field (CC)

In "Advanced Search" and "Expert Search" the subjects can be selected from a list (see link below search fields) giving the top level of the WTI-classification. Several selected items are combined with the operator OR. The selection of an item also includes the more precise subclasses into the search.

If you enter the code directly, e.g. CC:3BFB, only the specified class is found, unless you truncate the class: CC:BF* includes the subclasses. In the "General Search" the field tag CC has to be used. Instead you can select the field from the dropdown-list in the "Expert Search".

For a list of the codes see [WTI Classification](#)

Additionally you can refine your search result after a search in other search fields with the link "Classification" on the right hand side of the titlelist. Several selected subjects are combined with the operator AND, that is: all must apply. This list is sortable either by number of hits or alphabetically by codes.

Field Source (SO)

Publication titles may be searched as phrases (strings), e.g. "laser in medicine and surgery".

Field Serial Codes (SC)

ISSN and ISBN are searched with hyphens without text, e.g. 978-3-18-092009-2.

The WTI-Journal-Code is searchable e.g. as FJC:770 (see [WTI Journal List](#) [in German]).

Field Conference Details (CF)

Since 1993 the conference details have been standardised. Since then conference series numbers have been assigned to conferences regularly scanned. These numbers may be searched e.g. as CSN:14 or CSN:12349 (Numbers see [Conferences](#) [in German]). The Conference Series Numbers are to be searched without the leading zeros. CSN has to be entered in capital letters. The conference number is displayed in field Serial Codes. Conferences published before 1993 may be searched as usual with phrases or with operators.

Publication Form (PF)

This field helps identify electronic publications. It is available since 1991. Search with the codes: EC for CD-ROM/DVD, ED for records with link (DOI, Digital Object Identifier) to the publisher, where the publication is available, or EL for online documents, that are often for free in the internet.

Search e.g. PF:ed

With PF:e* all electronic publications are found.

Instead you can refine your search result with **Publication Type** "Electronic Publication" in the right column of the Results list, which includes all of the codes above.

Field Treatment Codes (TC)

This field is available since 1993, which means that selecting a code from this list excludes older records from the search result.

Field Document Number (NO)

The document number is a permanent identifier for a specific record. Search e.g. NO:20090101598.

INSPEC-Records

Until 2011 WTI has included documents from the database INSPEC in TEMA. Should you search INSPEC as well as TEMA or parts thereof, you can exclude doubles in TEMA by combining your search result with NOT PROD:insp (PROD in capital letters).

Update

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