Promoted V$_2$O$_5$/TiO$_2$ catalysts for selective catalytic reduction of NO with NH$_3$ at low temperatures

The influence of varying the V$_2$O$_5$ content (3–6 wt.%) was studied for the selective catalytic reduction (SCR) of nitrogen oxides by ammonia on heteropoly acid (HPA)- and tungsten oxide (WO$_3$)-promoted V$_2$O$_5$/TiO$_2$ catalysts. The SCR activity and alkali deactivation resistance of HPA-promoted V2O5/TiO2 catalysts was found to be much higher than for WO$_3$-promoted catalysts. By increasing the vanadium content from 3 to 5 wt.% the catalysts displayed a two fold increase in activity at 225 °C and retained their initial activity after alkali doping at a molar K/V ratio of 0.181. Furthermore, the catalysts were characterized by N$_2$ physisorption, XRPD, NH$_3$-TPD, H$_2$-TPR, Raman, FTIR and EPR spectroscopy to investigate the properties of the catalysts. XRPD, Raman and FTIR showed that promotion with 15 wt.% HPA does not cause V$_2$O$_5$ to be present in crystalline form, also at a loading of 5 wt.% V$_2$O$_5$. Hence, use of HPAs does not cause increased N$_2$O formation or unselective oxidation of NH$_3$. NH$_3$-TPD showed that promotion by HPA instead of WO$_3$ causes the catalysts to possess a higher number of acid sites, both in fresh and alkali poisoned form, which might explain their higher potassium tolerance. Ex-situ EPR spectroscopy revealed that HPA-promoted catalysts have higher V$^{4+}$/V$^{5+}$ ratios than their WO$_3$-promoted counterparts. H$_2$-TPR suggests that HPAs do not have a beneficial effect on the V$^{5+}$/V$^{3+}$ redox system, relative to WO$_3$.
BFI (2017): BFI-level 2
Scopus rating (2017): SJR 3.152 SNIP 2.359 CiteScore 10.92
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 8.86 SJR 2.693 SNIP 2.185
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.326 SNIP 2.16 CiteScore 7.72
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.322 SNIP 2.206 CiteScore 6.92
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.391 SNIP 2.154 CiteScore 6.42
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.65 SNIP 2.234 CiteScore 6.08
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.606 SNIP 2.351 CiteScore 6.14
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.479 SNIP 1.904
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 2
Scopus rating (2009): SJR 2.323 SNIP 2.245
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 2.514 SNIP 2.297
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 2.536 SNIP 2.532
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 2.315 SNIP 2.272
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 2.136 SNIP 2.283
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 2.406 SNIP 2.421
Scopus rating (2003): SJR 2.132 SNIP 2.223
Scopus rating (2002): SJR 2.373 SNIP 1.851
Scopus rating (2001): SJR 2.685 SNIP 2.39
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 1.859 SNIP 2.08
Scopus rating (1999): SJR 1.921 SNIP 1.871
Original language: English
SCR of NO with NH3, V2O5, Potassium poisoning, Heteropoly acids
Electronic versions:
1_s2.0_S0926337315302253_main.pdf
DOIs:
10.1016/j.apcatb.2015.10.044
Source: Findit
Source-ID: 2287663906
Combined oxidation and absorption of nox by an ionic liquid tandem process.
The present invention relates to a new strategy for capturing NOx using a two-step process.

General information
State: Published
Organisations: Department of Chemistry, Department of Chemistry, Centre for Catalysis and Sustainable Chemistry, Organic Chemistry, DTU Admission Course, Office for Research and Relations, Risø National Laboratory for Sustainable Energy
Publication date: 22 Oct 2015

Publication information
IPC: B01D 53/ 04 A I
Patent number: WO2015158849
Date: 22/10/2015
Priority date: 16/04/2014
Priority number: EP20140164843
Original language: English
Main Research Area: Technical/natural sciences
Source: espacenet
Source-ID: WO2015158849
Publication: Research › Patent – Annual report year: 2016

Characterization of spectral compression of OFDM symbols using optical time lenses
We present a detailed investigation of a double-time-lens subsystem for spectral compression of OFDM symbols. We derive optimized parameter settings by simulations and experimental characterization. The required chirp for OFDM spectral compression is very large.

General information
State: Published
Organisations: Department of Photonics Engineering, High-Speed Optical Communication, DTU Admission Course, National Space Institute, Department of Micro- and Nanotechnology
Authors: Røge, K. M. (Intern), Guan, P. (Intern), Kjøller, N. (Intern), Lilieholm, M. (Intern), Galili, M. (Intern), Morioka, T. (Intern), Oxenløwe, L. K. (Intern)
Pages: 303-304
Publication date: 2015

Host publication information
Title of host publication: Proceedings of 2015 IEEE Photonics Conference
Publisher: IEEE
ISBN (Print): 9781479974658
Main Research Area: Technical/natural sciences
Conference: 2015 IEEE Photonics Conference, Reston, Virginia, United States, 04/10/2015 - 04/10/2015
Photonics and Electrooptics, Chirp, Lenses, Numerical simulation, ofdm, optical signal processing, Switches, time lens, Wavelength division multiplexing
DOIs: 10.1109/IPCon.2015.7323656
Source: FindIt
Source-ID: 276556050
Publication: Research - peer-review › Article in proceedings – Annual report year: 2015

Synchrotron Based Structural Investigations of Mass-Selected PtxGd Nanoparticles and a Gd/Pt(111) Single Crystal for Electrochemical Oxygen Reduction
The sluggish kinetics of the oxygen reduction reaction (ORR) hinders the commercialization of proton exchange membrane fuel cells (PEMFC). The ORR activity is enhanced by alloying Pt with late transition 3d metals (i.e. Fe, Co, Ni, and Cu)1. However, these compounds tend to degrade in a fuel cell by dealloying. An alternative approach is to alloy Pt with rare-earth elements. Their highly negative alloying energy may provide them with kinetic stability against dealloying under reaction conditions. A recent publication from our group reported the high ORR activity and stability of polycrystalline Pt5Gd2. In this work, we present the experimental results of mass-selected PtxGd nanoparticles
Mapping the Complex Morphology of Cell Interactions with Nanowire Substrates Using FIB-SEM

Using high resolution focused ion beam scanning electron microscopy (FIB-SEM) we study the details of cell-nanostructure interactions using serial block face imaging. 3T3 Fibroblast cellular monolayers are cultured on flat glass as a control surface and on two types of nanostructured scaffold substrates made from silicon black (Nanograss) with low- and high nanowire density. After culturing for 72 hours the cells were fixed, heavy metal stained, embedded in resin, and processed with FIB-SEM block face imaging without removing the substrate. The sample preparation procedure, image acquisition and image post-processing were specifically optimised for cellular monolayers cultured on nanostructured substrates. Cells display a wide range of interactions with the nanostructures depending on the surface morphology, but also greatly varying from one cell to another on the same substrate, illustrating a wide phenotypic variability. Depending on the substrate and cell, we observe that cells could for instance: break the nanowires and engulf them, flatten the substrates. Cells display a wide range of interactions with the nanostructures depending on the surface morphology, but also greatly varying from one cell to another on the same substrate, illustrating a wide phenotypic variability. Depending on the substrate and cell, we observe that cells could for instance: break the nanowires and engulf them, flatten the substrates.

General information

State: Published

Organisations: Center for Electron Nanoscopy, Molecular Windows, Department of Micro- and Nanotechnology, DTU Admission Course, Nanoprobes, Fluidic Array Systems and Technology, University of Copenhagen

Mini-chromosomes among danish Candida glabrata isolates originated through two different mechanisms

We analyzed 201 strains of the pathogenic yeast Candida glabrata from patients, mainly suffering from systemic infection, at Danish hospitals during 1985 – 1999. Our analysis showed that these strains were closely related but exhibited large karyotype polymorphism. Nine strains contained mini-chromosomes, which were smaller than 0.5 Mb. Regarding the year, patient and hospital, C. glabrata strains had independent origin and the analyzed mini-chromosomes were structurally not related to each other (i.e., they contained different sets of genes). We inferred two mechanisms involved in their origin: (i) through a segmental duplication which covered the centromeric region, and (ii) by a translocation event moving a larger chromosome arm to another chromosome that leaves the centromere part with the shorter arm. The first type of mini-chromosomes carrying duplicated genes exhibited mitotic instability, while the second type, which contained the corresponding genes in only one copy in the genome, was mitotically stable. Apparently, in patients C. glabrata chromosomes are frequently reshuffled resulting in various genetic configurations, including appearance of mini-chromosomes. Such new combinations could have increased fitness in a certain patient “environment”

General information
State: Published
Organisations: DTU Admission Course, Department of Systems Biology, Department of Applied Chemistry, Department of Microbiology, Lund University, Regionshospitalet Herning
Authors: Ahmad, K. M. (Ekstern), Ishchuk, O. (Ekstern), Hellborg, L. (Ekstern), Jørgensen, G. (Ekstern), Skvarc, M. (Ekstern), Stenderup, J. (Forskerdatabase), Jørck-Ramberg, D. (Intern), Polakova, S. (Ekstern), Piskur, J. (Intern)
Pages: 159-159
Publication date: 2012
Main Research Area: Technical/natural sciences

Publication information
Journal: Mycoses
Volume: 55
ISSN (Print): 0933-7407
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 1.131 SJR 1.069 CiteScore 2.71
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): SJR 1.018 SNIP 1.03 CiteScore 2.31
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.905 SNIP 1.108 CiteScore 2.16
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.824 SNIP 0.97 CiteScore 1.82
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.629 SNIP 1.009 CiteScore 1.61
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.539 SNIP 0.975 CiteScore 1.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.585 SNIP 1.112 CiteScore 1.77
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.57 SNIP 1.105
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.577 SNIP 1.221
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.691 SNIP 1.248
Scopus rating (2007): SJR 0.59 SNIP 0.962
Scopus rating (2006): SJR 0.462 SNIP 0.88
Scopus rating (2005): SJR 0.443 SNIP 0.989
Scopus rating (2004): SJR 0.426 SNIP 0.88
Scopus rating (2003): SJR 0.421 SNIP 0.973
Scopus rating (2002): SJR 0.404 SNIP 0.686
Scopus rating (2001): SJR 0.462 SNIP 0.837
Scopus rating (2000): SJR 0.414 SNIP 0.796
Scopus rating (1999): SJR 0.428 SNIP 0.83

Original language: English
DERMATOLOGY, MYCOLOGY
Source: dtu
Source-ID: n:oai:DTIC-ART:isi/366284484::26743
Publication: Research - peer-review › Conference abstract in journal – Annual report year: 2012

Internationale studerende, ikke i Danmark

General information
State: Published
Organisations: DTU Admission Course, Center for Bachelor of Engineering Studies
Authors: Knudsen, J. S. (Intern)
Pages: 2
Publication date: Aug 2011

Publication information
Pages (from-to): 2
Newspaper: Jyllands-Posten
Ratings:
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
ISI indexed (2011): ISI indexed no
Main Research Area: Technical/natural sciences
Publication: Communication › Newspaper article – Annual report year: 2011

4 TEMAER: Natur, naturvidenskab og teknologi / religion og sekularisering / menneskeopfattelse / politiske ideer

General information
State: Published
Organisations: DTU Admission Course
Authors: Kristensen, J. Ø. (Intern)
Number of pages: 206
Publication date: 2009

Publication information
Place of publication: Ballerup
Publisher: Ingeniørhøjskolen i København
Edition: 2
Original language: Danish
Main Research Area: Technical/natural sciences
Publication: Education › Compendium/lecture notes – Annual report year: 2009

Filosofi

General information
State: Published
Organisations: DTU Admission Course
Temaer i Dansk

General information
State: Published
Organisations: DTU Admission Course
Authors: Knudsen, J. S. (Intern)
Number of pages: 200
Publication date: 2008

Publication information
Place of publication: Ballerup
Publisher: Ingeniørhøjskolen i København
Original language: Danish
Main Research Area: Technical/natural sciences
Publication: Education › Compendium/lecture notes – Annual report year: 2008

Idéhistoriske noter

General information
State: Published
Organisations: DTU Admission Course
Authors: Kristensen, J. Ø. (Intern)
Number of pages: 100
Publication date: 2001

Publication information
Place of publication: Ballerup
Publisher: Ingeniørhøjskolen i København
Edition: 2
Original language: Danish
Main Research Area: Technical/natural sciences
Publication: Education › Compendium/lecture notes – Annual report year: 2001

Projects:

Mechanical and microstructural transients after strain path changes in metal forming
Department of Mechanical Engineering
Materials and Surface Engineering
DTU Admission Course
Manufacturing Engineering
Period: 01/03/2014 → 06/06/2017
Number of participants: 3
Project participant:
Jensen, Mikkel Ravn Boye (Intern)
Winther, Grethe (Intern)
Bay, Niels Oluf (Intern)

Relations
Multi-scale material models for smart metal forming

Analysis of deformation-induced intragranular orientation spread in IF-steel by a combination of 3DXRD and crystal plasticity

Department of Mechanical Engineering
Materials and Surface Engineering
Department of Physics
Neutrons and X-rays for Materials Physics
Manufacturing Engineering
DTU Admission Course

University of Illinois
Period: 01/02/2014 → 31/07/2017
Number of participants: 5
Acronym: MulMatMod
Number of related Ph.D. students: 2
Project participant:
Winther, Grethe (Intern)
Oddershede, Jette (Intern)
Bay, Niels Oluf (Intern)
Juul, Nicolai Ytterdal (Intern)
Jensen, Mikkel Ravn Boye (Intern)

Related projects:
Characterisation and modelling of crystallographic orientation changes at the grain scale during plastic deformation
Mechanical and microstructural transients after strain path changes in metal forming

Activities:
Analysis of deformation-induced intragranular orientation spread in IF-steel by a combination of 3DXRD and crystal plasticity
Intragranular orientation spread induced by grain interaction
Grain-scale investigations of deformation and surface treatment of stainless steel
Deformation-induced intragranular orientation spread in ferrite investigated by 3DXRD and forward modeling
Combining crystal plasticity and dislocation theory to model dislocation boundary characteristics
Intragranular orientation spread induced by grain interaction
Analysis of grain-scale experimental data in a crystal plasticity framework
Measured Resolved Shear Stresses on Slip Systems in Austenitic Steel Grains
Parallel evolution of deformation textures and dislocation boundaries
Hierarchical microstructures in metals due to dislocation-mediated plasticity

Publications:
Analysis of deformation-induced intragranular orientation spread in IF-steel by a combination of 3DXRD and crystal plasticity
Deformation-induced orientation spread in individual bulk grains of an interstitial-free steel

Activities:
Rekruttering af unge (mænd) til ingeniøruddannelse i Region Sjælland: Knudepunkter til overvejelse og diskussion
Period: 17 Nov 2011
Jesper Stensbo Knudsen (Speaker)
DTU Admission Course

**Description**
Diskussion af centrale problemstillinger i forbindelse med rekrutteringsprojekt i Region Sjælland, IMODUS. København, Danmark.

**Documents:**
abstract

**Related external organisation**

**Unknown external organisation**
Activity: Talks and presentations › Conference presentations

**Faggruppesekretær**
Period: 26 Aug 2010 → …
Hanne Lindgreen Frimurer (Other)
DTU Admission Course

**Related external organisation**

**Ingeniørhøjskolen i København**
Denmark
Activity: Other

**Lektorbedømmelse (External organisation)**
Period: 26 Apr 2009 → 24 May 2009
Jesper Stensbo Knudsen (Participant)
DTU Admission Course

**Description**
Bedømmelsesudvalg

**Related external organisation**

**Lektorbedømmelse**
Activity: Membership › Membership of commitees, commissions, boards, councils, associations, organisations, or similar

**AK-lederforsamlingen (External organisation)**
Period: 22 Mar 2009 → …
Jesper Stensbo Knudsen (Chairman)
DTU Admission Course

**Description**
Forening af studieledere ved Adgangskurser til ingenieruddannelserne i Danmark

**Related external organisation**

**AK-lederforsamlingen**
Activity: Membership › Membership of commitees, commissions, boards, councils, associations, organisations, or similar

**Fra Tolerance til Respekt**
Period: 26 Apr 2008
Jesper Stensbo Knudsen (Speaker)
DTU Admission Course

**Description**
Diskussion af centrale begreber inden for interkulturel kommunikation med L. Wittgenstein og H-G. Gadamer som baggrund. Malmö, Sverige
En filosofisk fantasi over Rafæl's "Skolen i Athen": Diltheys "Drøm" (1903)
Period: 28 Sep 2007
Jens Østergaard Kristensen (Lecturer)
DTU Admission Course

Description
Den tyske filosof og åndshistoriker Wilhelm Dilthey (1833-1911) holdt ved sin 70 års fødselsdag en tale, "Drøm", hvor han med udgangspunkt i en drøm, han engang havde haft om Rafæls fresko "Skolen i Athen", prøvede at sammendrage det vigtigste i sin filosofi. Ebeltoft, Danmark