Ming Chen - DTU Orbit (30/01/2019)

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Research outputs:

Phase Field Modelling of Microstructural Changes in Ni/YSZ Solid Oxide Electrolysis Cell Electrodes
Research output: Research - peer-review › Article in proceedings – Annual report year: 2019

Characterization of three dimensional transport networks in a long-term tested solid oxide electrolysis cell
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2018

Comparison between La$_{0.6}$Sr$_{0.4}$CoO$_{3-d}$ and LaNi$_{0.6}$Co$_{0.4}$O$_{3}$ infiltrated oxygen electrodes for long-term durable solid oxide fuel cells
Research output: Research - peer-review › Journal article – Annual report year: 2018

Diffusion rates of reactants and components in solid oxide cells
Research output: Research - peer-review › Article in proceedings – Annual report year: 2018

Numerical simulation of kinetic demixing and decomposition in a LaCoO$_{3-\delta}$ oxygen membrane under an oxygen potential gradient
Research output: Research - peer-review › Journal article – Annual report year: 2018

Oxidation behavior of a Ni-Fe support in SOFC anode atmosphere
Research output: Research - peer-review › Journal article – Annual report year: 2018

Post-mortem analysis of a 25-cell solid oxide electrolysis stack operated for 9000 hours
Research output: Research › Conference abstract for conference – Annual report year: 2018

Sintering of MnCo$_2$O$_4$ coatings prepared by electrophoretic deposition
Research output: Research - peer-review › Journal article – Annual report year: 2018

Durable fuel electrode
Research output: Research › Patent – Annual report year: 2017

A Contribution to the Understanding of the Combined Effect of Nitrogen and Boron in Grey Cast Iron
Research output: Research - peer-review › Journal article – Annual report year: 2017
A Decade of Solid Oxide Electrolysis Improvements at DTU Energy
Research output: Research - peer-review › Conference article – Annual report year: 2017

Analysis of Gas Leakage and Current Loss of Solid Oxide Fuel Cells by Screen Printing
Research output: Research - peer-review › Journal article – Annual report year: 2017

Application of numerical inverse method in calculation of composition-dependent interdiffusion coefficients in finite diffusion couples
Research output: Research - peer-review › Journal article – Annual report year: 2017

Concentration Impedance in Testing of Solid Oxide Cells Revisited
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2017

Concentration Impedance in Testing of Solid Oxide Cells Revisited
Research output: Research - peer-review › Journal article – Annual report year: 2017

High performance LaNi1-xCoxO3-δ (x = 0.4 to 0.7) infiltrated oxygen electrodes for reversible solid oxide cells
Research output: Research - peer-review › Journal article – Annual report year: 2017

In-situ formed Ce0.8Gd0.2O1.9 barrier layers on yttria stabilized zirconia backbones by infiltration - A promising path to high performing oxygen electrodes of solid oxide cell
Research output: Research - peer-review › Journal article – Annual report year: 2017

Life cycle assessment of hydrogen production from water electrolysis
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2017

Mechanical Properties of Supports and Half-Cells for Solid Oxide Electrolysis Influenced by Alumina-Zirconia Composites
Research output: Research - peer-review › Journal article – Annual report year: 2016

Microstructural Characterization of Ni/YSZ Electrodes in a Solid Oxide Electrolysis Stack Tested for 9000 Hours
Research output: Research - peer-review › Journal article – Annual report year: 2017

Microstructural Characterization of Ni/YSZ Electrodes in a Solid Oxide Electrolysis Stack Tested for 9000 Hours
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2017

Modeling of Ni Diffusion Induced Austenite Formation in Ferritic Stainless Steel Interconnects
Research output: Research - peer-review › Journal article – Annual report year: 2017

Performance and electrochemical analysis of solid oxide fuel cells based on LSCF-YSZ nano-electrode
Research output: Research - peer-review › Journal article – Annual report year: 2017

Pressurized reversible operation of a 30-cell solid oxide cell stack using carbonaceous gases
Research output: Research - peer-review › Article in proceedings – Annual report year: 2017

Relation Between Ni Particle Shape Change and Ni Migration in Ni–YSZ Electrodes – a Hypothesis
Research output: Research - peer-review › Journal article – Annual report year: 2017

Spinel-based coatings for metal supported solid oxide fuel cells
Research output: Research - peer-review › Journal article – Annual report year: 2017
Thermoneutral Operation of Solid Oxide Electrolysis Cells in Potentiostatic Mode
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2017

Thermoneutral Operation of Solid Oxide Electrolysis Cells in Potentiostatic Mode
Research output: Research - peer-review › Journal article – Annual report year: 2017

Towards long-term stable solid state electrolyzers with infiltrated catalysts
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2017

Towards solid oxide electrolysis plants in 2020
Research output: Research › Poster – Annual report year: 2018

A contribution to the understanding of the combined effect of nitrogen and boron in grey cast iron
Research output: Research - peer-review › Article in proceedings – Annual report year: 2017

A Decade of Improvements for Solid Oxide Electrolysis Cells. Long-Term Degradation Rate from 40%/kh to 0.4 % Kh
Research output: Research - peer-review › Conference abstract in journal – Annual report year: 2016

An Ag based brazing system with a tunable thermal expansion for the use as sealant for solid oxide cells
Research output: Research - peer-review › Journal article – Annual report year: 2016

Characterisation of a Planar Solid Oxide Cell Stack Operated at Elevated Pressure
Research output: Research - peer-review › Conference abstract in journal – Annual report year: 2016

Characterization of a Planar Solid Oxide Cell Stack Operated at Elevated Pressure
Research output: Research - peer-review › Conference article – Annual report year: 2016

Effects of strong cathodic polarization of the Ni-YSZ interface
Research output: Research - peer-review › Journal article – Annual report year: 2016

Electrochemical Impedance Spectroscopy on Industrially-Relevant Solid Oxide Electrolyzer Cell Stacks: A Powerful Tool for in-Situ Investigations of Degradation Mechanisms
Research output: Research - peer-review › Conference abstract in journal – Annual report year: 2016

High-Performance Microchanneled Asymmetric Gd$_{0.1}$Ce$_{0.9}$O$_{1.95-5}$La$_{0.6}$Sr$_{0.4}$FeO$_{3-5}$-Based Membranes for Oxygen Separation
Research output: Research - peer-review › Journal article – Annual report year: 2016

In-Situ Formed Ce$_{0.8}$Gd$_{0.2}$O$_{1.9}$ Barrier Layer on Yttria Stabilized Zirconia Back-Bone for Infiltrated Oxygen Electrodes
Research output: Research - peer-review › Conference abstract in journal – Annual report year: 2016

Long-term operation of a solid oxide cell stack for coelectrolysis of steam and CO$_2$
Research output: Research - peer-review › Article in proceedings – Annual report year: 2016

Low temperature processed MnCo$_2$O$_4$ and MnCo$_{1.8}$Fe$_{0.2}$O$_4$ as effective protective coatings for solid oxide fuel cell interconnects at 750 °C
Research output: Research - peer-review › Journal article – Annual report year: 2016

NiYSZ electrodes structures optimized for increased electrolysis performance and durability
Research output: Research - peer-review › Journal article – Annual report year: 2016
Phase diagram for a nano-yttria-stabilized zirconia system
Research output: Research - peer-review › Journal article – Annual report year: 2016

Pressurized Operation of a Planar Solid Oxide Cell Stack
Research output: Research - peer-review › Journal article – Annual report year: 2016

Relation between shape of Ni-particles and Ni migration in Ni-YSZ electrodes – a hypothesis
Research output: Research - peer-review › Article in proceedings – Annual report year: 2016

Thermodynamic modeling of the Sr-Co-Fe-O system
Research output: Research - peer-review › Journal article – Annual report year: 2016

Understanding degradation of solid oxide electrolysis cells through modeling of electrochemical potential profiles
Research output: Research - peer-review › Journal article – Annual report year: 2016

A novel CO2- and SO2-tolerant dual phase composite membrane for oxygen separation
Research output: Research - peer-review › Journal article – Annual report year: 2015

Assessment of (Mn,Co)2O4 powders for possible coating material for SOFC/SOEC interconnects
Research output: Research - peer-review › Journal article – Annual report year: 2016

LaNi1-xCo3O4 (x=0.4 to 0.7) cathodes for solid oxide fuel cells by infiltration
Research output: Research - peer-review › Journal article – Annual report year: 2016

Life Time Performance Characterization of Solid Oxide Electrolysis Cells for Hydrogen Production
Research output: Research - peer-review › Conference article – Annual report year: 2015

Life Time Performance Characterization of Solid Oxide Electrolysis Cells for Hydrogen Production
Research output: Research - peer-review › Conference abstract in journal – Annual report year: 2015

Modeling of Ni Diffusion Induced Austenite Formation in Ferritic Stainless Steel Interconnects
Research output: Research - peer-review › Conference article – Annual report year: 2015

Ni/YSZ microstructure optimization for long-term stability of solid oxide electrolysis cells
Research output: Research - peer-review › Poster – Annual report year: 2015

Residual stresses and strength of multilayer tape cast solid oxide fuel and electrolysis half-cells
Research output: Research - peer-review › Journal article – Annual report year: 2015

Stability of La0.6Sr0.4Co0.2Fe0.8O3-δ/Ce0.8Gd0.2O1.9 cathodes during sintering and solid oxide fuel cell operation
Research output: Research - peer-review › Journal article – Annual report year: 2015

Ceria based protective coatings for steel interconnects prepared by spray pyrolysis
Research output: Research - peer-review › Conference article – Annual report year: 2015

Durability of high performance Ni-yttria stabilized zirconia supported solid oxide electrolysis cells at high current density
Research output: Research - peer-review › Journal article – Annual report year: 2014

Durable solid oxide electrolysis cells for hydrogen production
Research output: Research - peer-review › Article in proceedings – Annual report year: 2014
Electrochemistry Unlocks Wettability: Epitaxial Growth of Oxide Nanoparticles on Rough Metallic Surfaces
Research output: Research - peer-review › Journal article – Annual report year: 2014

Electron microscopy investigation of electrochemically enabled wetting of Y stabilized zirconia on Ni
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2014

Electron microscopy investigation of electrochemically enabled wetting of Y stabilized zirconia on Ni
Research output: Research - peer-review › Poster – Annual report year: 2014

Electron microscopy investigation of electrochemically enabled wetting of Y stabilized zirconia on Ni
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2014

Electron microscopy investigation of electrochemically enabled wetting of Y stabilized zirconia on Ni
Research output: Research - peer-review › Poster – Annual report year: 2014

Influence of Mn-Co Spinel Coating on Oxidation Behavior of Ferritic SS Alloys for SOFC Interconnect Applications
Research output: Research - peer-review › Article in proceedings – Annual report year: 2014

Ni/YSZ microstructure optimization for long-term stability of solid oxide electrolysis cells
Research output: Research - peer-review › Article in proceedings – Annual report year: 2014

Optimization of Ferritic Steel Porous Supports for Protonic Fuel Cells Working at 600°C
Research output: Research - peer-review › Article in proceedings – Annual report year: 2014

Optimization of Ferritic Steel Porous Supports for Protonic Fuel Cells Working at 600°C
Research output: Research - peer-review › Article in proceedings – Annual report year: 2014

Oxidation study of coated Crofer 22 APU steel in dry oxygen
Research output: Research - peer-review › Journal article – Annual report year: 2014

Residual stresses in a co-sintered SOC half-cell during post-sintering cooling
Research output: Research - peer-review › Article in proceedings – Annual report year: 2014

Solid oxide cell oxygen electrode with enhanced durability
Research output: Research › Patent – Annual report year: 2014

Stability and oxygen transport property of La$_{0.8}$Sr$_{0.2}$Cr$_{0.6}$Fe$_{0.5}$O$_{3-δ}$
Research output: Research - peer-review › Journal article – Annual report year: 2014

Storing electricity and CO$_2$ as synthetic hydrocarbon fuels by high temperature electrolysis
Research output: Research › Poster – Annual report year: 2014

Thermodynamic Evaluation of LSCF Cathode Stability and Tolerance towards Gas Impurities
Research output: Research - peer-review › Article in proceedings – Annual report year: 2014

TOF-SIMS characterization of impurity enrichment and redistribution in solid oxide electrolysis cells during operation
Research output: Research - peer-review › Journal article – Annual report year: 2014

Diffusion of Nickel into Ferritic Steel Interconnects of Solid Oxide Fuel/Electrolysis Stacks
Research output: Research - peer-review › Conference article – Annual report year: 2013
Durability of Solid Oxide Electrolysis Cell and Interconnects for Steam Electrolysis
Research output: Research - peer-review › Conference article – Annual report year: 2013

Durability of Solid Oxide Electrolysis Cells for Syngas Production
Research output: Research - peer-review › Journal article – Annual report year: 2013

High Temperature Co-Electrolysis of Steam and CO₂ in an SOC Stack: Performance and Durability
Research output: Research - peer-review › Conference article – Annual report year: 2013

High Temperature Oxidation of Ferritic Steels for Solid Oxide Electrolysis Stacks
Research output: Research - peer-review › Conference article – Annual report year: 2013

Influence of the oxygen electrode and inter-diffusion barrier on the degradation of solid oxide electrolysis cells
Research output: Research - peer-review › Conference article – Annual report year: 2013

Microstructural Degradation of Ni/YSZ Electrodes in Solid Oxide Electrolysis Cells under High Current
Research output: Research - peer-review › Journal article – Annual report year: 2013

Microstructure characterisation of solid oxide electrolysis cells operated at high current density
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2013

Reversible solid oxide cells: Limitations and possibilities
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2014

Reversible Solid Oxide Cells: Limitations and Possibilities
Research output: Research › Sound/Visual production (digital) – Annual report year: 2013

Thermodynamic modeling of the Co-Fe-O system
Research output: Research – Annual report year: 2013

Transmission Electron Microscopy Specimen Preparation Method for Multiphase Porous Functional Ceramics
Research output: Research - peer-review › Journal article – Annual report year: 2013

Development of SOEC Cells and Stacks: Highlights, Challenges and future Perspectives
Research output: Research › Sound/Visual production (digital) – Annual report year: 2012

Durable and Robust Solid Oxide Fuel Cells
Research output: Research › Report – Annual report year: 2013

Efficient dual layer interconnect coating for high temperature electrochemical devices
Research output: Research - peer-review › Journal article – Annual report year: 2012

High Temperature Co-electrolysis of Steam and CO₂ in an SOC stack: Performance and Durability
Research output: Research - peer-review › Article in proceedings – Annual report year: 2012

Improved oxidation resistance of ferritic steels with LSM coating for high temperature electrochemical applications
Research output: Research - peer-review › Conference article – Annual report year: 2012

Microstructure degradation of LSM-YSZ cathode in SOFCs operated at various conditions
Research output: Research - peer-review › Journal article – Annual report year: 2011
Performance and Durability of Solid Oxide Electrolysis Cells for Syngas Production
Research output: Research › peer-review › Conference article – Annual report year: 2012

Thermodynamic analysis of synthetic hydrocarbon fuel production in pressurized solid oxide electrolysis cells
Research output: Research › peer-review › Journal article – Annual report year: 2012

Thermodynamic modeling of $\text{La}_2\text{O}_3$-$\text{SrO}$-$\text{Mn}_2\text{O}_3$-$\text{Cr}_2\text{O}_3$ for solid oxide fuel cell applications
Research output: Research › peer-review › Journal article – Annual report year: 2012

Electrical conductivity of Ni–YSZ composites: Degradation due to Ni particle growth
Research output: Research › peer-review › Journal article – Annual report year: 2011

Electrolysis for Integration of Renewable Electricity and Routes towards Sustainable Fuels
Research output: Research › Article in proceedings – Annual report year: 2011

High Temperature Electrolysis of Steam and CO2 in Solid Oxide Cells
Research output: Research › Conference abstract for conference – Annual report year: 2011

Performance and durability of solid oxide electrolysis cells for syngas production
Research output: Research › Conference abstract in proceedings – Annual report year: 2011

The Effect of Humidity and Oxygen Partial Pressure on LSM–YSZ Cathode
Research output: Research › Journal article – Annual report year: 2011

A Composite Glass Seal for a Solid Oxide Electrolyser Cell Stack
Research output: Research › Patent – Annual report year: 2010

Corrosion stability of ferritic stainless steels for solid oxide electrolyser cell interconnects
Research output: Research › Journal article – Annual report year: 2010

Investigation of Failure Mechanisms in Ti containing Brazing Alloys used in SOFC/SOEC Environments
Research output: Research › Article in proceedings – Annual report year: 2011

Phase Formation in the System ZrO2–LaO1.5–MnOx in Air and PO2B1 Pa After 500 h of Annealing at 12001 and 14001 deg.C
Research output: Research › Journal article – Annual report year: 2010

Removal of Impurity phases from electrochemical devices
Research output: Research › Patent – Annual report year: 2010

Stability of Ni–yttria stabilized zirconia anodes based on Ni-impregnation
Research output: Research › Journal article – Annual report year: 2010

TEM Investigations on Cathode Degradation in Solid Oxide Fuel Cells
Research output: Research › Article in proceedings – Annual report year: 2010

Thermodynamic assessment of the CoOx-Cr01.5 system (vol 485, pg 427, 2009)
Research output: Research › peer-review › Journal article – Annual report year: 2010
Effect of Humidity in Air on Performance and Long-term Durability of SOFCs
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2009

Effect of Humidity in Air on Performance and Long-Term Durability of SOFCs
Research output: Research - peer-review › Conference article – Annual report year: 2009

LSM-YSZ Reactions in Different Atmospheres
Research output: Research - peer-review › Journal article – Annual report year: 2009

Microstructural studies on degradation of interface between LSM–YSZ cathode and YSZ electrolyte in SOFCs
Research output: Research - peer-review › Journal article – Annual report year: 2009

Thermodynamic assessment of the CoOx-CrO1.5 system
Research output: Research - peer-review › Journal article – Annual report year: 2009

Thermodynamic Assessment of the La-Cr-O System
Research output: Research - peer-review › Journal article – Annual report year: 2009

Thermodynamic assessment of the La-Fe-O system
Research output: Research - peer-review › Journal article – Annual report year: 2009

Degradation mechanisms on LSM/YSZ electrodes
Research output: Research › Paper – Annual report year: 2008

Modelling of oxides for use in high temperature fuel cells
Research output: Research - peer-review › Article in proceedings – Annual report year: 2008

Thermodynamics and phase equilibria in the ZrO2-61485; La=1.5 system
Research output: Research › Paper – Annual report year: 2008

Deposition of La0.8Sr0.2Cr0.97V0.03O3 and MnCr2O4 thin films on ferritic alloy for solid oxide fuel cell application
Research output: Research - peer-review › Conference article – Annual report year: 2007

LSM-YSZ interface reactions during long-term heat treatment
Research output: Research › Paper – Annual report year: 2007

Reaction thermodynamics at the LSM-YSZ interface in SOFCs
Research output: Research › Paper – Annual report year: 2007

Thermodynamic evaluation of the CoOx-Cr2O3 system
Research output: Research › Poster – Annual report year: 2007

Thermodynamic modeling of the LaMnO3-YSZ interface reactions using the CALPHAD approach
Research output: Research › Conference abstract for conference – Annual report year: 2006

Thermodynamic modeling of the La-Mn-Y-Zr-O system
Research output: Research - peer-review › Journal article – Annual report year: 2006

Projects:
Durable and high performing steam electrode for proton conducting solid oxide cells
Project: PhD

Novel Cobalt Free Oxygen Electrodes for Solid Oxide Electrolysis Cells
Project: PhD

Modeling of degradation processes in high temperature electrolysis cells
Project: PhD

Degradation mechanism of the LSCF Cathode
Project: PhD

Activities:

Reversible Operation using Carbonaceous Gasses of a 30-cell Solid Oxide Cell Stack
Activity: Talks and presentations › Conference presentations

Towards solid oxide electrolysis plants in 2020
Activity: Talks and presentations › Conference presentations

Thermoneutral Operation of Solid Oxide Electrolysis Cells in Potentiostatic Mode
Activity: Talks and presentations › Conference presentations

Solid Oxide Electrolysis for Grid Balancing: Recent Achievements and Future Challenges
Activity: Talks and presentations › Conference presentations

Materials Science & Technology 2016 (MS&T16) conference
Activity: Talks and presentations › Conference presentations

69th Annual Gaseous Electronics Conference
Activity: Talks and presentations › Conference presentations

Denmark-China Bilateral Workshop on Energy Conversion and Storage
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

12th European SOFC & SOE Forum 2016
Activity: Talks and presentations › Conference presentations

Hydrogen2Storage & Transport in Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Sino-Denmark Bilateral Forum: Possibilities and Challenges of Solid Oxide Cells in Energy Transition
Activity: Attending an event › Participating in or organising a conference

Chemical thermodynamics in CO2 capture and electrolysis
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Prizes:

Third Price EFC17 Best Paper Awards
Prize: Prizes, scholarships, distinctions