Publications:

Controlled atmosphere high-temperature scanning probe microscopy (CAHT-SPM)  
Hansen, K. V. 2017 Metal Oxide-Based Thin Film Structures: Formation, Characterization and Application of Interface-Based Phenomena. Elsevier Science, Ch. 9, p. 203-223  
Publication: Research - peer-review › Book chapter – Annual report year: 2017

Dynamic and Impure Perovskite Structured Metal Oxide Surfaces  
Publication: Research - peer-review › Conference abstract in journal – Annual report year: 2017

Dynamic and Impure Perovskite Structured Metal Oxide Surfaces  
Hansen, K. V., Norrman, K., Traulsen, M. L. & Mogensen, M. B. 2017 In : E C S Transactions. 80, 9, p. 91-100  
Publication: Research - peer-review › Conference article – Annual report year: 2017

Electrochemical Study of (La₀.₆Sr₀.₄)₀.₉₉CoO₃₋δ Thin Film Microelectodes  
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2017

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

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

High temperature conductance mapping for correlation of electrical properties with micron-sized chemical and microstructural features  
Publication: Research - peer-review › Journal article – Annual report year: 2016

High temperature in operando and in situ spectroscopy on electrified surfaces and interfaces  
Publication: Research › Conference abstract for conference – Annual report year: 2016

New Hypothesis for SOFC Ceramic Oxygen Electrode Mechanisms  
Publication: Research - peer-review › Conference article – Annual report year: 2016

Pulsed laser deposition of Cu₂ZnSnS₄ absorber layers assisted by a reactive sulfur beam for solar cells  
Publication: Research › Conference abstract for conference – Annual report year: 2017
Study of the Polarization Behavior of $\text{Ce}_{0.9}\text{Gd}_{0.1}\text{O}_2-\delta$ Single Crystals below 350°C to Room Temperature
Publication: Research - peer-review › Journal article – Annual report year: 2016

The Impact of Strong Cathodic Polarization on SOC Electrolyte Materials
Publication: Research - peer-review › Conference abstract in journal – Annual report year: 2016

Dynamic behavior of impurities and native components in model LSM microelectrodes on YSZ
Publication: Research - peer-review › Journal article – Annual report year: 2015

Effect of Aging on the Electrochemical Performance of LSM-YSZ Cathodes
Publication: Research - peer-review › Journal article – Annual report year: 2015

Environmental TEM study of the dynamic nanoscaled morphology of NIO/YSZ during reduction
Publication: Research - peer-review › Journal article – Annual report year: 2015

LSM Microelectrodes: Kinetics and Surface Composition
Publication: Research - peer-review › Journal article – Annual report year: 2015

Need for In Operando Characterization of Electrochemical Interface Features
Publication: Research - peer-review › Conference article – Annual report year: 2015

Impedance Spectra of Activating/Passivating Solid Oxide Electrodes
Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

In situ surface reduction of a NIO-YSZ-alumina composite using scanning probe microscopy
Publication: Research - peer-review › Journal article – Annual report year: 2014

NIO/YSZ Reduction for SOFC/SOEC Studied In situ by Environmental Transmission Electron Microscopy
Publication: Research - peer-review › Conference abstract in journal – Annual report year: 2014
**NiO/YSZ Reduction for SOFC/SOEC Studied In Situ by Environmental Transmission Electron Microscopy**
Publication: Research - peer-review › Conference article – Annual report year: 2014

**Site specific 3D pathway analysis of functional energy materials**
Jørgensen, P. S., Stegk, T. & Hansen, K. V. 2014
Publication: Research - peer-review › Poster – Annual report year: 2014

**Deposition of matrix-free fullerene films with improved morphology by matrix-assisted pulsed laser evaporation (MAPLE)**
Publication: Research - peer-review › Journal article – Annual report year: 2013

**Electrochemical reduction of NiO in a composite electrode**
Publication: Research - peer-review › Journal article – Annual report year: 2013

**High purity H2/H2O/Ni/YSZ electrodes at 500º C**
Publication: Research - peer-review › Journal article – Annual report year: 2013

**Improved controlled atmosphere high temperature scanning probe microscope**
Publication: Research - peer-review › Journal article – Annual report year: 2013

**Lifetime of the internal reference oxygen sensor**
Publication: Research - peer-review › Journal article – Annual report year: 2013

**Long-Term Stability of LSM-YSZ Based Cathodes**
Publication: Research - peer-review › Conference article – Annual report year: 2013

**Oxygen Electrode Kinetics and Surface Composition of Dense (La0.75Sr0.25)0.95MnO3 on YSZ**
Publication: Research - peer-review › Conference article – Annual report year: 2013

**Sensor employing internal reference electrode**
Hu, Q., Hansen, K. V. & Mogensen, M. 2013
Publication: Research › Patent – Annual report year: 2013

**SOFC anode reduction studied by in situ TEM**
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2013

**Thin films of C60 produced by matrix-assisted pulsed laser evaporation (MAPLE)**
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2013

**Absence of Dopant Segregation to the Surface of Scandia and Yttria Co-Stabilized Zirconia**
Publication: Research - peer-review › Journal article – Annual report year: 2012
Composite Sr- and V-doped LaCrO$_3$/YSZ sensor electrode operating at low oxygen levels
Publication: Research - peer-review › Journal article – Annual report year: 2012

Fundamental Material Properties Underlying Solid Oxide Electrochemistry
Publication: Research - peer-review › Article in proceedings – Annual report year: 2012

Improved Internal Reference Oxygen Sensors Using Composite Oxides as Electrodes
Publication: Research › Ph.D. thesis – Annual report year: 2012

Improved Internal Reference Oxygen Sensors with Composite Ceramic Electrodes
Publication: Research - peer-review › Journal article – Annual report year: 2012

The effect of loading and particle size on the oxygen reaction in CGO impregnated Pt electrodes
Publication: Research - peer-review › Journal article – Annual report year: 2011

Electrochemical removal of segregated silicon dioxide impurities from yttria stabilized zirconia surfaces at elevated temperatures
Publication: Research - peer-review › Journal article – Annual report year: 2011

Geometrical characterization of interconnected phase networks in three dimensions
Publication: Research - peer-review › Journal article – Annual report year: 2011

Impedance measurements on Au microelectrodes using controlled atmosphere high temperature scanning probe microscope
Publication: Research - peer-review › Journal article – Annual report year: 2011

Impurity features in Ni-YSZ-H$_2$-H$_2$O electrodes
Publication: Research - peer-review › Journal article – Annual report year: 2011

Limitations of potentiometric oxygen sensors operating at low oxygen levels
Publication: Research - peer-review › Journal article – Annual report year: 2011

Strontium zirconate as silicon and aluminum scavenger in yttria stabilized zirconia
Andersen, T., Hansen, K. V., Chorkendorff, I. & Mogensen, M. B. 2011 In: Solid State Ionics. 190, 1, p. 82-87
Publication: Research - peer-review › Journal article – Annual report year: 2011

The Strategic Electrochemical Research Center in Denmark
Mogensen, M. B. & Hansen, K. V. 2011 In: ECS Transactions. 35, 1, p. 43-52
Publication: Research - peer-review › Conference article – Annual report year: 2011
Quantitative data analysis methods for 3D microstructure characterization of Solid Oxide Cells
Publication: Research › Ph.D. thesis – Annual report year: 2010

A framework for automatic segmentation in three dimensions of microstructural tomography data
Publication: Research - peer-review › Journal article – Annual report year: 2010

Atmosphere, temperature and pressure dependent segregation of bulk impurities in yttria-stabilized zirconia
Publication: Research - peer-review › Conference abstract in proceedings – Annual report year: 2011

High accuracy interface characterization of three phase material systems in three dimensions
Publication: Research - peer-review › Journal article – Annual report year: 2010

High Performance Fe-Co Based SOFC Cathodes
Publication: Research - peer-review › Journal article – Annual report year: 2010

Oxygen redox reaction and morphology of nanocrystalline GDC/platinum cermet electrodes
Publication: Research - peer-review › Conference abstract in proceedings – Annual report year: 2011

Robust high temperature oxygen sensor electrodes
Publication: Research › Ph.D. thesis – Annual report year: 2010

Impact of impurities and interface reaction on electrochemical activity
Publication: Research - peer-review › Book chapter – Annual report year: 2009

Scanning Probe Microscopy at 650 °C in Air
Publication: Research - peer-review › Journal article – Annual report year: 2009

Three-phase-boundary dynamics at the Ni/ScYSZ interface
Publication: Research - peer-review › Journal article – Annual report year: 2009

Effects of trace elements at the Ni/ScYSZ interface in a model solid oxide fuel cell anode
Publication: Research - peer-review › Journal article – Annual report year: 2008

Characterisation of the Ni/ScYSZ interface in a model solid oxide fuel cell anode
Publication: Research - peer-review › Journal article – Annual report year: 2008
Controlled atmosphere high temperature SPM for electrochemical measurements
Publication: Research - peer-review › Conference article – Annual report year: 2008

A Critical Review of Models of the H₂/H₂O/Ni/SSZ Electrode Kinetics
Publication: Research - peer-review › Conference article – Annual report year: 2007

A-site deficient (La0.6Sr0.4)1−sFe0.8Co0.2O3-delta perovskites as SOFC cathodes
Publication: Research - peer-review › Journal article – Annual report year: 2007

Effects of trace elements at the Ni/ScYSZ interface in a model solid oxide fuel cell anode.
Publication: Research › Conference abstract for conference – Annual report year: 2007

Recent advances with the CAHT-SPM
Hansen, K. V. 2007
Publication: Research › Paper – Annual report year: 2007

The H₂/H₂O/Ni/zirconia point electrode: Effects of impurities on the zirconia surface
Publication: Research › Article in proceedings – Annual report year: 2006

Time-of-flight secondary ion mass spectrometry as a tool for studying segregation phenomena at nickel-YSZ interfaces
Publication: Research - peer-review › Journal article – Annual report year: 2006

TOF-SIMS studies of yttria-stabilised zirconia
Publication: Research - peer-review › Journal article – Annual report year: 2006

Atmosphere variations at the H₂/H₂O/Ni/YSZ point electrode at 700 deg. C
Publication: Research › Article in proceedings – Annual report year: 2005

Fluctuations at electrode-YSZ interfaces
Publication: Research - peer-review › Journal article – Annual report year: 2005

High purity H₂/H₂O/nickel/stabilized zirconia electrodes at 500 °C
Publication: Research - peer-review › Conference article – Annual report year: 2005

High Purity H₂/H₂O/Nickel/Stabilized Zirconia Electrodes at 500°C
Publication: Research - peer-review › Article in proceedings – Annual report year: 2005
Effect of impurities on anode performance
Publication: Research - peer-review › Article in proceedings – Annual report year: 2004

Fluctuations at electrode-YSZ interfaces
Jacobsen, T., Hansen, K. V. & Skou, E. 2004
Publication: Research › Conference abstract for conference – Annual report year: 2004

Fluctuations at Electrode-YSZ Interfaces
Jacobsen, T., Hansen, K. V. & Skou, E. 2004
Publication: Research › Conference abstract for conference – Annual report year: 2004

H₂H₂O-Ni-YSZ electrode performance
Publication: Research - peer-review › Journal article – Annual report year: 2004

Impurity segregation in yttria-stabilised zirconia in air and in wet 9% H₂/N₂
Hansen, K. V., Normann, K., Høgh, J. V. T. & Mogensen, M. B. 2004
Publication: Research › Conference abstract for conference – Annual report year: 2004

TOF-SIMS studies of yttria-stabilised zirconia
Hansen, K. V., Normann, K. & Mogensen, M. 2004
Publication: Research › Conference abstract for conference – Annual report year: 2004

Effect of impurities on structural and electrochemical properties of the Ni-YSZ interface
Publication: Research - peer-review › Journal article – Annual report year: 2003

H₂H₂O-Ni-YSZ electrode performance and segregation to the interface
Publication: Research › Article in proceedings – Annual report year: 2003

Progress in understanding SOFC electrodes
Publication: Research › Article in proceedings – Annual report year: 2002

The Ni-YSZ interface: Structure, composition and electrochemical properties at 1000°C
Publication: Research › Ph.D. thesis – Annual report year: 2002

Effect of NiO-to-Ni transformation on conductivity and structure of yttria-stabilized ZrO₂
Publication: Research - peer-review › Journal article – Annual report year: 2001

Foreign phases and SOFC electrode kinetics
Publication: Research › Article in proceedings – Annual report year: 2001
Microstructural and chemical changes at the Ni/YSZ interface
Publication: Research - peer-review › Journal article – Annual report year: 2001

A study of the nickel/YSZ interface
Publication: Research - peer-review › Article in proceedings – Annual report year: 2000

Interfaces in composite electrodes in solid fuel cells: The nickel/YSZ interface
Jensen, K. V. 2000
Publication: Research › Conference abstract for conference – Annual report year: 2000

Progress in understanding the SOFC electrodes (invited lecture)
Publication: Research › Conference abstract for conference – Annual report year: 2000

Studies of the Ni/YSZ interface in solid oxide fuel cell anodes
Publication: Research › Conference abstract for conference – Annual report year: 2000

Studies of the Ni/YSZ interface in solid oxide fuel cell anodes
Publication: Research - peer-review › Article in proceedings – Annual report year: 2000

Projects:

In-operando spatially resolved probing of solid oxide electrolysis/fuel cells
Pitscheider, S., Chatzichristodoulou, C., Chueh, W. C., Hansen, K. V. & Hjelm, J.
01/05/2015 → 30/04/2018
Project: PhD

In-operando localized probing of solid oxide electrolysis/fuel cells by controlled atmosphere high temperature scanning probe microscopy
Kreka, K., Hansen, K. V., Chatzichristodoulou, C., Mogensen, M. B. & Norrman, K.
15/03/2015 → 14/06/2018
Project: PhD

In-Situ Investigation of Microstructures in Fuel Cells
01/05/2010 → 31/07/2011
Project: PhD

Nanostructured Ceramic Oxygen Sensors
01/09/2009 → 17/12/2012
Project: PhD

In-situ characterisation of electrodes using novel SPM methods
01/04/2008 → 30/11/2009
Project: PhD
Study of new inexpensive materials for robust oxygen sensor electrodes
01/02/2008 → 24/08/2011
Project: PhD

Ultra rene elektroder og elektrolytter for SOFC (Ultra Clean electrode and electrolytes for SOFC)
Andersen, T., Chorkendorff, I., Hansen, K. V., Mogensen, M. B., Rossmeisl, J., Irvine, J. T. S. & Morgen, P.
01/11/2007 → 22/06/2011
Project: PhD

Automatic Quantitative Image Analysis of 3D Micrographs
01/03/2007 → 22/09/2010
Project: PhD

Metal/Hydrogen elektroders kinetik på faststofelektrolytter
01/06/2002 → 30/09/2005
Project: PhD

Grænseflader i komposite elektroder i fastoxid - brændselsceller/elektrolysatorer
01/06/1999 → 09/09/2002
Project: PhD