Christian Frithiof Niordson - DTU Orbit (18/10/2017)

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Solid Mechanics

Publications:

Hardening and strengthening behavior in rate-independent strain gradient crystal plasticity
Publication: Research - peer-review › Journal article – Annual report year: 2018

A homogenization method for ductile-brittle composite laminates at large deformations
Publication: Research - peer-review › Journal article – Annual report year: 2017

An incremental flow theory for crystal plasticity incorporating strain gradient effects
Publication: Research - peer-review › Journal article – Annual report year: 2017

Steady-state crack growth in single crystals under Mode I loading
Publication: Research - peer-review › Journal article – Annual report year: 2017

Steady-state numerical modeling of size effects in micron scale wire drawing
Publication: Research - peer-review › Journal article – Annual report year: 2017

A finite element framework for distortion gradient plasticity with applications to bending of thin foils
Publication: Research - peer-review › Journal article – Annual report year: 2016

Attaining the rate-independent limit of a rate-dependent strain gradient plasticity theory
Publication: Research - peer-review › Journal article – Annual report year: 2016

Editorial
Publication: Research - peer-review › Editorial – Annual report year: 2016

Homogenization of long fiber reinforced composites including fiber bending effects
Publication: Research - peer-review › Journal article – Annual report year: 2016

Micro-buckling of periodically layered composites in regions of stress concentration
Publication: Research - peer-review › Journal article – Annual report year: 2016
Micro-Structural Evolution and Size-Effects in Plastically Deformed Single Crystals: Strain Gradient Continuum Modeling
(DCAMM Special Report; No. S213).
Publication: Research › Ph.D. thesis – Annual report year: 2016

On fracture in finite strain gradient plasticity
Publication: Research - peer-review › Journal article – Annual report year: 2016

On modeling micro-structural evolution using a higher order strain gradient continuum theory
Publication: Research - peer-review › Journal article – Annual report year: 2015

Rolling at small scales
Publication: Research - peer-review › Journal article – Annual report year: 2015

Size scale dependence of compressive instabilities in layered composites in the presence of stress gradients
Publication: Research - peer-review › Conference article – Annual report year: 2016

Steady-State Crack Growth in Rate-Sensitive Single Crystals
Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

Steady-State Numerical Modeling of Size Effects in Wire Drawing
Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

Strain gradient plasticity-based modeling of hydrogen environment assisted cracking
Publication: Research - peer-review › Journal article – Annual report year: 2016

Strain gradient plasticity modeling of hydrogen diffusion to the crack tip
Publication: Research - peer-review › Journal article – Annual report year: 2016

Accounting for Fiber Bending Effects in Homogenization of Long Fiber Reinforced Composites
Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

Strain gradient crystal plasticity: A continuum mechanics approach to modeling micro-structural evolution
Publication: Research - peer-review › Article in proceedings – Annual report year: 2015

A numerical basis for strain-gradient plasticity theory: Rate-independent and rate-dependent formulations
Publication: Research - peer-review › Journal article – Annual report year: 2014
Computational strain gradient crystal plasticity
Publication: Research - peer-review › Journal article – Annual report year: 2014

Computational stress and damage modelling for rolling contact fatigue
Publication: Research › Ph.D. thesis – Annual report year: 2015

Micromechanical failure in fiber-reinforced composites
Publication: Research › Ph.D. thesis – Annual report year: 2014

On the homogenization of metal matrix composites using strain gradient plasticity
Publication: Research - peer-review › Journal article – Annual report year: 2014

Strain gradient effects in periodic flat punch indenting at small scales
Publication: Research - peer-review › Journal article – Annual report year: 2014

A 2D finite element implementation of the Fleck–Willis strain-gradient flow theory
Publication: Research - peer-review › Journal article – Annual report year: 2013

A deformation mechanism map for polycrystals modeled using strain gradient plasticity and interfaces that slide and separate
Publication: Research - peer-review › Journal article – Annual report year: 2013

A new macroscopically anisotropic pressure dependent yield function for metal matrix composite based on strain gradient plasticity for the microstructure
Publication: Research - peer-review › Journal article – Annual report year: 2013

Length-scale effect due to periodic variation of geometrically necessary dislocation densities
Publication: Research - peer-review › Journal article – Annual report year: 2013

Material size effects on crack growth along patterned wafer-level Cu–Cu bonds
Publication: Research - peer-review › Journal article – Annual report year: 2013

Micromechanical modeling of unidirectional composites with uneven interfacial strengths
Publication: Research - peer-review › Journal article – Annual report year: 2013

On modeling of geometrically necessary dislocation densities in plastically deformed single crystals
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013
Effects of Uneven Interfacial Strength on Damage Evolution in Composites
Publication: Research › Conference abstract for conference – Annual report year: 2012

Extended FEM modeling of crack paths near inclusions
Publication: Research - peer-review › Journal article – Annual report year: 2011

On size-effects in single crystal wedge indentation
Publication: Research - peer-review › Article in proceedings – Annual report year: 2012

Rate sensitivity of mixed mode interface toughness of dissimilar metallic materials: Studied at steady state
Publication: Research - peer-review › Journal article – Annual report year: 2012

Strain gradient effects on steady state crack growth in rate-sensitive materials
Publication: Research - peer-review › Journal article – Annual report year: 2012

Basic Strain Gradient Plasticity Theories with Application to Constrained Film Deformation
Publication: Research - peer-review › Journal article – Annual report year: 2011

Computational Strain Gradient Crystal Plasticity
Publication: Research - peer-review › Article in proceedings – Annual report year: 2011

Multi-scale modeling of composites
Publication: Research › Ph.D. thesis – Annual report year: 2011

Size-effects on yield surfaces for micro reinforced composites
Publication: Research - peer-review › Journal article – Annual report year: 2011

Continuum modeling of size-effects in single crystals
Publication: Research › Article in proceedings – Annual report year: 2010

Debonding failure and size effects in micro reinforced composites
Publication: Research - peer-review › Journal article – Annual report year: 2010

Strain gradient effects on cyclic plasticity
Publication: Research - peer-review › Journal article – Annual report year: 2010

On the effects of strain gradient plasticity during cyclic loading
Publication: Research - peer-review › Article in proceedings – Annual report year: 2009
Strain gradient effects in composites
Publication: Research - peer-review › Article in proceedings – Annual report year: 2009

On higher-order boundary conditions at elastic-plastic boundaries in strain-gradient plasticity
Publication: Research - peer-review › Journal article – Annual report year: 2008

Plasticity size effects in voided crystals
Publication: Research - peer-review › Journal article – Annual report year: 2008

Size-effects at a crack-tip interacting with a number of voids
Publication: Research - peer-review › Journal article – Annual report year: 2008

Size effects on void growth in single crystals with distributed voids
Publication: Research - peer-review › Journal article – Annual report year: 2008

Strain gradient effects on void growth and coalescence
Publication: Research › Article in proceedings – Annual report year: 2008

Void growth to coalescence in a non-local material
Publication: Research - peer-review › Journal article – Annual report year: 2008

Size effects in crystal plasticity
Publication: Research › Ph.D. thesis – Annual report year: 2007

On higher-order boundary conditions at elastic-plastic boundaries in strain-gradient plasticity
Niordson, C. F. 2007 Technical University of Denmark (DTU).
Publication: Research › Report – Annual report year: 2007

Size-effects at a crack-tip interacting with a number of voids
Publication: Research › Report – Annual report year: 2007

Size-effects in porous metals
Niordson, C. F. & Tvergaard, V. 2007 In : Modelling and Simulation in Materials Science and Engineering. 15, 1, p. 51-60
Publication: Research - peer-review › Journal article – Annual report year: 2007

Size effects on void growth in single crystals with distributed voids
Publication: Research › Report – Annual report year: 2007

A viscoplastic strain gradient analysis of materials with voids or inclusions
Plasticity size effects in voided crystals

Size-effects in porous metals
Niordson, C. F. & Tvergaard, V. 2006 Technical University of Denmark (DTU).

Size effects on cavitation instabilities
Niordson, C. F. & Tvergaard, V. 2006 In : Journal of Applied Mechanics. 73, 2, p. 246-253

Void growth on the micron scale

Void growth to coalescence in a non-local material

A viscoplastic strain gradient analysis of materials with voids or inclusions
Borg, U., Niordson, C. F., Fleck, N. A. & Tvergaard, V. 2005

Instabilities in power law gradient hardening materials

Size-Effects in Void Growth

Size-effects on cavitation instabilities
Niordson, C. F. & Tvergaard, V. 2005 (DCAMM; No. 707).

Nonlocal plasticity effects on interaction of different size voids

Size-effects in plane strain sheet-necking

Non-uniform plastic deformation of micron scale objects

On lower order strain gradient plasticity theories
On the effect of strain gradients in a fiber reinforced metal
Publication: Research - peer-review › Article in proceedings – Annual report year: 2003

Size-effects in plane strain sheet-necking
Niordson, C. F. & Redanz, P. 2003
Publication: Communication › Report – Annual report year: 2003

Strain gradient plasticity effects in whisker-reinforced metals
Publication: Research - peer-review › Journal article – Annual report year: 2003

Non-local modeling of materials
Niordson, C. F. 2002
Publication: Research › Ph.D. thesis – Annual report year: 2002

Nonlocal plasticity effects on fibre debonding in a whisker-reinforced metal
Publication: Research - peer-review › Journal article – Annual report year: 2002

Non-local plasticity effects on fracture toughness
Publication: Research › Article in proceedings – Annual report year: 2002

Nonlocal plasticity effects on interaction of different size voids
Tvergaard, V. & Niordson, C. F. 2002
Publication: Communication › Report – Annual report year: 2002

On lower order strain gradient plasticity theories
Niordson, C. F. & Hutchinson, J. W. 2002
Publication: Communication › Report – Annual report year: 2002

Strain gradient plasticity effects in whisker-reinforced metals
Niordson, C. F. 2002
Publication: Communication › Report – Annual report year: 2002

Analysis of steady-state ductile crack growth along a laser weld
Publication: Research - peer-review › Journal article – Annual report year: 2001

Non-local plasticity effects on the tensile properties of a metal matrix composite
Publication: Research - peer-review › Journal article – Annual report year: 2001

Analysis of steady-state ductile crack growth
Niordson, C. 1999
Publication: Research - peer-review › Report – Annual report year: 1999

On the accuracy of the asymptotic theory for cylindrical shells
Publication: Research - peer-review › Journal article – Annual report year: 1999
On the accuracy of the asymptotic theory for cylindrical shells
Niordson, F. & Niordson, C. 1999
Publication: Research - peer-review › Report – Annual report year: 1999

Projects:

Advancing Numerical Analysis of Large Scale Crack Propagation in Plate Structures
Andersen, R. G., Nielsen, K. L. & Niordson, C. F.
01/01/2017 → 31/12/2019
Project: PhD

Modelling of Hydraulic Fracturing
Lynggaard, J., Niordson, C. F., Andreasen, C. S. & Jørgensen, O.
15/10/2016 → 14/10/2019
Project: PhD

Steady-State Modeling of Engineering Processes
Juul, K. J., Nielsen, K. L. & Niordson, C. F.
01/09/2015 → 31/08/2018
Project: PhD

Fracture mechanics approach to probabilistic inspection planning of offshore foundation structures for wind turbines
01/11/2014 → 01/02/2018
Project: PhD

Fatigue damage evolution in fibre composites for wind turbine blades
15/04/2014 → 07/09/2017
Project: PhD

Modelling the Effects of Process Induced Defects on Subsequent Mechanical Behaviour of Cast Components
Andriollo, T., Hattel, J. H., Thorborg, J., Tiedje, N. S., Niordson, C. F., Bellet, M. & Kouznetsova, V.
01/09/2013 → 16/02/2017
Project: PhD

Higher order continuum modeling of micro-structural evolution in plastically deformed metals
Nellemann, C., Niordson, C. F. & Nielsen, K. L.
01/09/2012 → 07/12/2017
Project: PhD

Micro-structural evolution and size-effects in single crystals
01/09/2012 → 25/11/2016
Project: PhD

Computational modelling of rolling contact fatigue in wind turbines
01/09/2011 → 26/01/2015
Project: PhD

Micro Mechanical Damage Tolerance Improvements of Composites
01/04/2011 → 25/08/2014
**Multiscale Modeling of Composites**  
Azizi, R., Niordson, C. F., Legarth, B. N., Tvergaard, V., Richelsen, A. B., Fleck, N. A. & Jensen, H. M.  
15/09/2008 → 21/12/2011  
Project: PhD

**Analyse af revner i store diselmotorer**  
Lucht, T., Tvergaard, V., Brendsted, P., Jensen, S. H., Niordson, C. F., Maier, G. & Redanz, P.  
01/10/2004 → 11/04/2008  
Project: PhD

**Brudmekanismer i kompositmaterialer - effekt af fiber/matrix grænsefladens mekaniske egenskaber**  
Østergaard, R. C., Tvergaard, V., Mikkelsen, L. P., Sørensen, B. F., Niordson, C. F., Jensen, H. M. & Östlund, S.  
15/04/2004 → 11/04/2008  
Project: PhD

**Størrelseeffekter i krystalplasticitet**  
01/01/2004 → 18/06/2007  
Project: PhD

**Ikke-lokal modellering af materialer**  
Niordson, C. F., Tvergaard, V., Jensen, H. M., Fleck, N. A. & Sørensen, N. J.  
01/09/1999 → 14/01/2003  
Project: PhD