Jens Gravesen - DTU Orbit (15/01/2018)

Gravesen, Jens

jgra@dtu.dk

Department of Applied Mathematics and Computer Science - Associate Professor

Mathematics

Publications:

**Robotic system and method for manufacturing of objects**
Publication: Research › Patent – Annual report year: 2017

**Optimization on Spaces of Curves**
Publication: Research › Ph.D. thesis – Annual report year: 2017

**Rationalization in architecture with surfaces foliated by elastic curves**
Publication: Research › Ph.D. thesis – Annual report year: 2017

**Approximation by planar elastic curves**
Publication: Research - peer-review › Journal article – Annual report year: 2016

**Cuttable Ruled Surface Strips for Milling**
Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

**Designing for hot-blade cutting: Geometric Approaches for High-Speed Manufacturing of Doubly-Curved Architectural Surfaces**
Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

**Hot Blade Cuttings for the Building Industries**
Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

**Rationalization with ruled surfaces in architecture**
Publication: Research › Ph.D. thesis – Annual report year: 2016

**Robotic Hot-Blade Cutting: An Industrial Approach to Cost-Effective Production of Double Curved Concrete Structures**
Publication: Research - peer-review › Book chapter – Annual report year: 2016
Isogeometric analysis of sound propagation through laminar flow in 2-dimensional ducts
Publication: Research - peer-review › Journal article – Annual report year: 2015

The Metric of Colour Space
Gravesen, J. 2015 In : Graphical Models. 82, November, p. 77-86
Publication: Research - peer-review › Journal article – Annual report year: 2015

Contaminant ingress into multizone buildings: An analytical state-space approach
Parker, S., Coffey, C., Gravesen, J., Kirkpatrick, J., Ratcliffe, K., Lingard, B. & Nally, J. 2014 In : Building Simulation. 7, 1, p. 57-71
Publication: Research - peer-review › Journal article – Annual report year: 2014

Differential Geometry Applied to Rings and Möbius Nanostructures
Publication: Research - peer-review › Book chapter – Annual report year: 2014

Isogeometric shape optimization of magnetic density separators
Publication: Research - peer-review › Journal article – Annual report year: 2014

Planar Parametrization in Isogeometric Analysis
Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

Iso-geometric shape optimization in fluid mechanics
Nørtoft, P. & Gravesen, J. 2013 In : Structural and Multidisciplinary Optimization. 48, 5, p. 909-925
Publication: Research - peer-review › Journal article – Annual report year: 2013

Publication: Research - peer-review › Book – Annual report year: 2012

Isogeometric analysis and shape optimization in electromagnetism
Publication: Research › Ph.D. thesis – Annual report year: 2012

Isogeometric Analysis and Shape Optimization in Fluid Mechanics
Publication: Research › Ph.D. thesis – Annual report year: 2012

ISOGEOMETRIC SHAPE OPTIMIZATION FOR ELECTROMAGNETIC SCATTERING PROBLEMS
Publication: Research - peer-review › Journal article – Annual report year: 2012

Strong curvature effects in Neumann wave problems
Publication: Research - peer-review › Journal article – Annual report year: 2012
Discretizations in isogeometric analysis of Navier-Stokes flow
Publication: Research - peer-review › Journal article – Annual report year: 2011

Effects of hydrostatic strain on eigenstates of Möbius strips
Publication: Research - peer-review › Article in proceedings – Annual report year: 2011

Efficiency of a gyroscopic device for conversion of mechanical wave energy to electrical energy: Technical report from ESGI-83 workshop in industrial mathematics 2011
Publication: Research - peer-review › Report – Annual report year: 2011

Isogeometric Analysis and Shape Optimisation
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2011

Isogeometric Shape Optimization of Vibrating Membranes
Publication: Research - peer-review › Journal article – Annual report year: 2011

Möbius semiconductor nanostructures and deformation potential strain effects
Lassen, B., Willatzen, M. & Gravesen, J. 2011 In : Journal of Nanoelectronics and Optoelectronics. 6, 1, p. 68-75
Publication: Research - peer-review › Journal article – Annual report year: 2011

On the sensitivities of multiple eigenvalues
Publication: Research - peer-review › Journal article – Annual report year: 2011

Analytic theory of curvature effects for wave problems with general boundary conditions
Publication: Research - peer-review › Journal article – Annual report year: 2010

Electron conductance in curved quantum structures
Publication: Research - peer-review › Journal article – Annual report year: 2010

Isogeometric analysis and shape optimisation
Publication: Research › Article in proceedings – Annual report year: 2010

Isogeometric Analysis and Shape Optimization for Fluids
Nielsen, P. N., Gersborg, A. R., Gravesen, J. & Pedersen, N. L. 2010
Publication: Research › Sound/Visual production (digital) – Annual report year: 2010

Isogeometric Analysis and Shape Optimization for Fluids
Nielsen, P. N., Gersborg, A. R., Gravesen, J. & Pedersen, N. L. 2010
Publication: Research › Sound/Visual production (digital) – Annual report year: 2010
Isogeometric Analysis and Shape Optimization in Fluid Mechanics
Nielsen, P. N., Gersborg, A. R. & Gravesen, J. 2010
Publication: Research › Sound/Visual production (digital) – Annual report year: 2010

Isogeometric Analysis and Shape Optimization in Stokes Flow Problems
Nielsen, P. N., Gersborg, A. R. & Gravesen, J. 2010
Publication: Research › Sound/Visual production (digital) – Annual report year: 2010

Isogeometric Analysis Towards Shape Optimization in Electromagnetics
Publication: Research - peer-review › Article in proceedings – Annual report year: 2010

Isogeometric Design of Vibrating Membranes
Publication: Research › Sound/Visual production (digital) – Annual report year: 2010

Isogeometric Shape Optimization
Publication: Research › Sound/Visual production (digital) – Annual report year: 2010

Isogeometric Shape Optimization of freely varying shapes
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2010

Isogeometric Shape Optimization of Vibrating Membranes
Publication: Research › Sound/Visual production (digital) – Annual report year: 2010

Isogeometric Shape Optimization of Vibrating Membranes
Publication: Research - peer-review › Article in proceedings – Annual report year: 2010

Iso-geometric Analysis and Shape Optimization in Mechanics
Nielsen, P. N., Gersborg, A. R. & Gravesen, J. 2009
Publication: Research › Poster – Annual report year: 2009

Isogeometric Analysis in Structural Analysis
Publication: Research - peer-review › Poster – Annual report year: 2009

Iso-geometric Analysis in Structural Vibrations
Nielsen, P. N., Gersborg, A. R. & Gravesen, J. 2009
Publication: Research › Poster – Annual report year: 2009

Isogeometric Design of Vibrating Membranes
Publication: Research - peer-review › Poster – Annual report year: 2009

Parametrisation in Iso geometric Analysis: A first report
Publication: Research › Report – Annual report year: 2009
Curves and surfaces represented by polynomial support functions
Publication: Research - peer-review › Journal article – Annual report year: 2008

Design for Change
Quak, E. & Gravesen, J. 2008 In : S I A M News. 41, 3, p. 2
Publication: Research - peer-review › Journal article – Annual report year: 2008

Electron states in curved quantum structures with varying radius
Gravesen, J. & Willatzen, M. 2008 In : Superlattices and Microstructures. 43, 5-6, p. 441-444
Publication: Research - peer-review › Conference article – Annual report year: 2008

On rationally supported surfaces
Publication: Research - peer-review › Journal article – Annual report year: 2008

The geometry of the Moineau pump
Gravesen, J. 2008 In : Computer-Aided Geometric Design. 25, 9, p. 792-800
Publication: Research - peer-review › Journal article – Annual report year: 2008

Approximating Offsets of Surfaces by using the Support Function Representation
Publication: Research - peer-review › Article in proceedings – Annual report year: 2007

Computing Convolutions and Minkowski sums via Support Functions
Publication: Research - peer-review › Article in proceedings – Annual report year: 2007

Surfaces parametrised by the normals
Gravesen, J. 2007 In : Computing. 79, 2-4, p. 175-183
Publication: Research - peer-review › Conference article – Annual report year: 2007

Surfaces with Piecewise Linear Support Functions over Spherical Triangulations
Publication: Research - peer-review › Article in proceedings – Annual report year: 2007

Acoustic waves in a medium bounded by curved surfaces
Willatzen, M. & Gravesen, J. 2006 In : Journal of Sound and Vibration. 296, p. 46-58
Publication: Research - peer-review › Journal article – Annual report year: 2006

Determination of Distance from a 2D Picture
Publication: Research - peer-review › Journal article – Annual report year: 2006

Electronic structure of helically coiled carbon nanotubes
Publication: Research - peer-review › Article in proceedings – Annual report year: 2006

Quantum eigenstates of curved nanowire structures
Beneath the Wheel - Greenwood Engineering
University of Southern Denmark. 14 p.
Publication: Research › Report – Annual report year: 2005

Curved nanowire structures
Gravesen, J. & Willatzen, M. 2005
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2005

Eigenstates of Mobius nanostructures including curvature effects
Publication: Research - peer-review › Journal article – Annual report year: 2005

Electronic structure of helically coiled carbon nanotubes
Publication: Research - peer-review › Poster – Annual report year: 2005

Measuring glucose content in the aqueous humor
Publication: Research › Article in proceedings – Annual report year: 2005

Piecewise planar Möbius bands
Publication: Research - peer-review › Report – Annual report year: 2005

Quantum-Mechanical Particle Confined to Surfaces of Revolution - Truncated Cone and Elliptic Torus Case Studies
Publication: Research - peer-review › Journal article – Annual report year: 2005

Schrödinger eigenstates for surface-confinement problems
Willatzen, M., Gravesen, J. & Voon, L. C. L. Y. 2005
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2005

Schrödinger problems for surfaces of revolution - the finite cylinder as a test example
Publication: Research - peer-review › Journal article – Annual report year: 2005

Space curves parametrized by arc length on the tangent image
Gravesen, J. 2005
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2005

Spatial emission characteristics of waveguiding organic nanofibers
Publication: Research - peer-review › Poster – Annual report year: 2005

Surfaces parametrized by their normals
Gravesen, J. 2005
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2005

The Cut Locus of a Torus of Revolution
Publication: Research - peer-review › Journal article – Annual report year: 2005
Waveguiding in organic nanofibers: measurements and simulations
Publication: Research - peer-review › Poster – Annual report year: 2005

The Intrinsic Equation of Planar Curves and G2 Hermite Interpolation
Publication: Research - peer-review › Report – Annual report year: 2004

The Intrinsic Equation of Planar Curves and G2 Hermite Interpolation
Publication: Research - peer-review › Report – Annual report year: 2004

Third Order Invariants on Surfaces
Publication: Research - peer-review › Article in proceedings – Annual report year: 2004

Definition of features on surfaces
Gravesen, J. 2003
Publication: Research › Conference abstract for conference – Annual report year: 2003

Invariants of implicit surfaces
Gravesen, J. 2003
Publication: Research › Conference abstract for conference – Annual report year: 2003

Planar curves parametrized by tangent direction
Gravesen, J. 2003
Publication: Research › Conference abstract for conference – Annual report year: 2003

The Cut Locus of a Torus of Revolution
Publication: Research › Report – Annual report year: 2003

The Scroll Compressor
Gravesen, J. 2003
Publication: Research › Conference abstract for conference – Annual report year: 2003

Constructing invariant fairness measures for surfaces
Publication: Research - peer-review › Journal article – Annual report year: 2002

The Geometry of the Scroll Compressor
Gravesen, J. & Henriksen, C. 2001 In : S I A M Review. 43, 1, p. 113-126
Publication: Research - peer-review › Journal article – Annual report year: 2001

Third Order Invariants on Surfaces
Gravesen, J. 2001
Publication: Research - peer-review › Report – Annual report year: 2001

AMROSE: Kinematic parameters for a robot
Publication: Research - peer-review › Article in proceedings – Annual report year: 2000
Geometrien af en scroll-kompressor: Fra et konkret problem til abstrakt matematik
Publication: Research - peer-review › Report – Annual report year: 1999

Geometrien af en scroll-kompressor: Fra et konkret problem til abstrakt matematik
Publication: Research - peer-review › Journal article – Annual report year: 1999

Kurver for Computer Assisteret Geometrisk Design
Publication: Research - peer-review › Report – Annual report year: 1999

The intrinsic equation of planar curves and the geometry of the scroll compressor
Publication: Research - peer-review › Report – Annual report year: 1999

32nd European Study Group with Industry, Final Report
Publication: Research - peer-review › Book – Annual report year: 1998

Constructing Invariant Fairness Measures for Surfaces
Publication: Research - peer-review › Report – Annual report year: 1998

Danfoss: Scroll Optimization
Publication: Research - peer-review › Article in proceedings – Annual report year: 1998

de Casteljau's Algorithm Revisited
Publication: Research - peer-review › Article in proceedings – Annual report year: 1998

Efficient Implementation of Volterra Filters for De-Interlacing TV Images - Snell and Wilcox
Budd, C., Gravesen, J. & Willson, E. 1998 31st European Study Group with Industry - Final Reports. Southampton: University of Southampton, Faculty of Mathematical Studies, p. 1-41
Publication: Research - peer-review › Article in proceedings – Annual report year: 1998

Adaptive subdivision and the length and energy of Bézier curves
Gravesen, J. 1997 In : Computational Geometry. 8, 1, p. 13-31
Publication: Research - peer-review › Journal article – Annual report year: 1997

Opgaver i Lineær Algebra
Publication: Research - peer-review › Book – Annual report year: 1997

The arc-length and energy of rational Bézier curves
Publication: Research - peer-review › Report – Annual report year: 1997

De Casteljau's Algorithm Revisited
Projects:

**Efficient 3D Shape Optimization**  
Limkilde, A., Gravesen, J. & Evgrafov, A.  
01/09/2017 → 31/08/2020  
Project: PhD

**Surface Design and Rationalization for Robotic Hotwire and Hotblade Cutting Techniques**  
Fisker, A., Brander, D., Bærentzen, J. A. & Gravesen, J.  
15/12/2015 → 14/12/2018  
Project: PhD

**Digital Factory**  
Brander, D., Gravesen, J., Bærentzen, J. A. & Fisker, A.  
01/03/2015 → 15/12/2018  
Project

**Optimization on Manifolds - with applications to shape optimization.**  
01/09/2013 → 23/11/2016  
Project: PhD

**BladeRunner - Applied Geometry**  
Nørnbjerg, T. B., Gravesen, J., Brander, D., Røgen, P., Polthier, K. & Wallner, J.  
01/06/2013 → 26/10/2016  
Project: PhD

**Rationalization with ruled surfaces in architecture**  
01/05/2013 → 25/08/2016  
Project: PhD

**BLADERUNNER - Large scale cost-effective robotic production of advanced formwork**  
Hattel, J. H., Petkov, K. & Gravesen, J.  
01/03/2013 → 31/08/2016  
Project

**Iso-geometric analysis and shape optimization in electromagnetism**  
Nguyen, D. M., Gravesen, J., Evgrafov, A., Breinbjerg, O., Dokken, T. & Grandine, T. A.  
15/02/2009 → 29/05/2012  
Project: PhD

**Iso-geometric analysis and shape optimization in fluid mechanics**  
Nørtøft, P., Gravesen, J., Pedersen, N. L., Stolpe, M., Bazilevs, Y. & Jüttler, B.  
01/02/2009 → 30/04/2012  
Project: PhD

**3D Printing and Scanning**  
Markvorsen, S., Gravesen, J. & Madsen, P.  
01/08/2007 → 01/01/2010  
Project
57th European Study Group with Industry
Gravesen, J., Hjorth, P. G., Petersen, H. G. & Willatzen, M.
01/05/2006 → 31/12/2006
Project

Design of pump geometry
Gravesen, J., Røgen, P., Markvorsen, S., Stolpe, M. & Bendsøe, M. P.
01/03/2005 → 31/05/2005
Project

51st European Study Group with Industry
Gravesen, J., Hjorth, P. G., Petersen, H. G. & Willatzen, M.
01/06/2004 → 31/12/2004
Project

MACSI-net
Gravesen, J.
04/01/2001 → 30/04/2004
Project

Length of general subdivision curves
Gravesen, J., Villiers, J. D. & Goosen, K.
28/03/2000 → ...
Project

Invariants in differential geometry and elasticity
Gravesen, J.
01/02/1999 → ...
Project

VIDIGEO (Visual Interactive Differential Geometry)
Markvorsen, S., Gravesen, J., Sinclair, R., Fajstrup, L., Karstoft, H. & Raussen, M.
01/09/1998 → ...
Project

Modelling and Fairing of Ship Hulls
Gravesen, J., Ungstrup, M., Baatrup, J. & Ecklon, E.
01/01/1998 → ...
Project

Dynamics of Plane Euler Elastica
Gravesen, J., Brøns, M., Hjorth, P. G., Markvorsen, S. & Sinclair, R.
01/09/1997 → ...
Project

Classification of Closed Strips in the Three Dimensional Euclidean Space
Røgen, P., Markvorsen, S., Gravesen, J. & Randrup, T.
01/01/1996 → 01/06/1997
Project

Deformation of Surfaces in Threespace
Gravesen, J.
01/01/1996 → ...
Project
Reconstruction of Surfaces for Reverse Engineering
Randrup, T. & Gravesen, J.
01/01/1996 → ...
Project

The Mobius Strip Embedding Problem
Regen, P., Markvorsen, S., Randrup, T. & Gravesen, J.
01/01/1996 → 01/10/1996
Project

Design and Engineering of Double Curved Ship Surfaces
Randrup, T. & Gravesen, J.
01/09/1995 → 31/08/1998
Project

Konstruktion af flader i computer assisteret geometrisk skibsdesignsk design (GAGD) via Gauss-afbildningen
Randrup, T., Gravesen, J., Dæhlen, M., Jensen, J. J. & Perram-John, W.
01/09/1995 → ...
Project: PhD

Lænker og knuder i differential-geometrisk perspektiv
Røgen, P., Hansen, V. L. & Gravesen, J.
01/02/1995 → 14/04/1999
Project: PhD

Geometric Heat Kernel Comparison Theory
Markvorsen, S., Gravesen, J., Sinclair, R. & Palmer, V.
01/02/1994 → ...
Project

Visualization of Cut-loci
Gravesen, J., Markvorsen, S. & Sinclair, R.
01/01/1994 → ...
Project

Subdivision and geometric properties of Bézier Curves and Surfaces
Gravesen, J.
01/01/1993 → ...
Project

Geometrisk og topologisk definition af maritime konstruktioner
Michelsen, J., Jensen, J. J. & Gravesen, J.
01/07/1991 → 07/11/1995
Project: PhD

Activities:

University of Southern Denmark (External organisation)
Gravesen, J. (Participant)
29 Sep 2015 → 21 Dec 2015
Activity: Membership › Membership in review committee

Daniella Kornelia Fußeder, TU Kaiserslautern (External organisation)
Gravesen, J. (Participant)
1 Jul 2015 → 29 Oct 2015
Activity: Membership › Membership in review committee
University of Southern Denmark (External organisation)
Gravesen, J. (Participant)
23 Apr 2015 → 20 May 2015
Activity: Membership › Membership in review committee

SIAM Conference on Geometric and Physical Modeling
Gravesen, J. (Participant)
Activity: Attending an event › Participating in or organising a conference

SAGA Fall School 2011
Gravesen, J. (Participant)
27 Sep 2011 → 30 Sep 2011
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

New Trends in Applied Geometry
Gravesen, J. (Participant)
20 Feb 2011 → 25 Feb 2011
Activity: Attending an event › Participating in or organising a conference

New Trends in Applied Geometry
Gravesen, J. (Participant)
14 Jan 2011
Activity: Attending an event › Participating in or organising a conference