Research outputs:

Quantifying the power output and structural figure-of-merits of triboelectric nanogenerators in a charging system starting from the Maxwell's displacement current
Research output: Contribution to journal › Journal article – Annual report year: 2019 › Research › peer-review

Symmetry of superconducting correlations in displaced bilayers of graphene
Research output: Contribution to journal › Journal article – Annual report year: 2019 › Research › peer-review

Control of superconducting pairing symmetries in monolayer black phosphorus
Research output: Contribution to journal › Journal article – Annual report year: 2019 › Research › peer-review

High fidelity optical quantum gates based on type II double quantum dots in a nanowire
Research output: Contribution to journal › Journal article – Annual report year: 2019 › Research › peer-review

High-fidelity optical quantum gates based on type-II double quantum dots in a nanowire
Research output: Contribution to journal › Journal article – Annual report year: 2019 › Research › peer-review

The Four-Band Spin-Less Kane Model in Curvilinear Coordinates
Research output: Contribution to journal › Journal article – Annual report year: 2019 › Research › peer-review

Fraunhofer response and supercurrent spin switching in black phosphorus with strain and disorder
Research output: Contribution to journal › Journal article – Annual report year: 2018 › Research › peer-review

Data-driven electronic structure calculations in semiconductor nanostructures — beyond the eight-band k · p formalism
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2018 › Research › peer-review

On the Geometry of Nanowires and the Role of Torsion
Research output: Contribution to journal › Journal article – Annual report year: 2018 › Research › peer-review

Pseudocanalizing propagation with hyperbolic surface waves
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2018 › Research › peer-review

Pseudocanalization regime for surface waves
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2018 › Research › peer-review
Reversed phase propagation for hyperbolic surface waves
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2018 › Research › peer-review

Strain-engineered Majorana zero energy modes and $\phi_0$ Josephson state in black phosphorus
Research output: Contribution to journal › Journal article – Annual report year: 2018 › Research › peer-review

Strain-enhanced optical absorbance of topological insulator films
Research output: Contribution to journal › Journal article – Annual report year: 2018 › Research › peer-review

Symmetry analysis of strain, electric and magnetic fields in the Bi2Se3-class of topological insulators: Paper
Research output: Contribution to journal › Journal article – Annual report year: 2018 › Research › peer-review

Strain tuning of optical properties in Bi$_2$Se$_3$
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2017 › Research › peer-review

3D continuum phonon model for group-IV 2D materials
Research output: Contribution to journal › Journal article – Annual report year: 2017 › Research › peer-review

Acousto-optical phonon excitation in cubic piezoelectric slabs and crystal growth orientation effects
Research output: Contribution to journal › Journal article – Annual report year: 2017 › Research › peer-review

Acousto-optical phonon excitation in piezoelectric wurtzite slabs and crystal growth orientation effects
Research output: Contribution to journal › Journal article – Annual report year: 2017 › Research › peer-review

A valence force field-Monte Carlo algorithm for quantum dot growth modeling
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2017 › Research › peer-review

Compensation of loss-induced beam broadening in HMMs by a $\mu$-negative HMM
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2017 › Research › peer-review

Efficient Modeling of Excitons in Type-II Nanowire Quantum Dots - Presented at: CLEO®/Europe-EQEC 2017, 2017, Munich
Research output: Contribution to conference › Conference abstract for conference – Annual report year: 2017 › Research › peer-review

Fundamentals of Silicene, Authors: Guzmán-Verri Gian G., Lok C. Lew Yan Voon and Willatzen Morten
Research output: Chapter in Book/Report/Conference proceeding › Book chapter – Annual report year: 2017 › Research › peer-review

Numerical simulations of nanostructured gold films
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2017 › Research › peer-review

Piezoelectric and deformation potential effects of strain-dependent luminescence in semiconductor quantum well structures
Research output: Contribution to journal › Journal article – Annual report year: 2016 › Research › peer-review

Plasmon Modes of Vertically Aligned Superlattices
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2017 › Research › peer-review
Pseudocanalization regime for magnetic dark-field hyperlenses
Research output: Contribution to journal › Journal article – Annual report year: 2017 › Research › peer-review

Type-II quantum-dot-in-nanowire structures with large oscillator strength for optical quantum gate applications
Research output: Contribution to journal › Journal article – Annual report year: 2017 › Research › peer-review

Type-II Quantum Dot Nanowire Structures with Large Oscillator Strengths for Optical Quantum Gating Applications
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2017 › Research › peer-review

A theory of generalized Bloch oscillations
Research output: Contribution to journal › Journal article – Annual report year: 2016 › Research › peer-review

Dark-field hyperlens for high-contrast sub-wavelength imaging
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2016 › Research › peer-review

Efficient Modeling of Coulomb Interaction Effect on Exciton in Crystal-Phase Nanowire Quantum Dot
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2016 › Research › peer-review

Parity-Time Synthetic Phononic Media
Research output: Contribution to journal › Journal article – Annual report year: 2016 › Research › peer-review

Theoretical study of the electromechanical efficiency of a loaded tubular dielectric elastomer actuator
Research output: Contribution to journal › Journal article – Annual report year: 2016 › Research › peer-review

A flow meter for ultrasonically measuring the flow velocity of fluids.

Band parameters of phosphorene
Research output: Contribution to journal › Journal article – Annual report year: 2015 › Research › peer-review

Effective Hamiltonians for phosphorene and silicene
Research output: Contribution to journal › Journal article – Annual report year: 2015 › Research › peer-review

Isogeometric analysis of sound propagation through laminar flow in 2-dimensional ducts
Research output: Contribution to journal › Journal article – Annual report year: 2015 › Research › peer-review

Mechanical Properties of Laminate Materials: From Surface Waves to Bloch Oscillations
Research output: Contribution to journal › Journal article – Annual report year: 2015 › Research › peer-review

On the \( \kappa^2 \)-dependence of \( \varepsilon_r \) and/or \( \mu_r \) for optimum absorption efficiency of electrically small homogeneous spheres with \( \varepsilon_r \) and/or \( \mu_r \) = -2
Research output: Contribution to conference › Paper – Annual report year: 2015 › Research › peer-review

Purcell effect of asymmetric dipole source distributions in nanowire resonators
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2015 › Research › peer-review
Tunable Broadband Acoustic Gain in Piezoelectric Semiconductors at ε-Near-Zero Response
Research output: Contribution to journal › Journal article – Annual report year: 2015 › Research › peer-review

Unified treatment of coupled optical and acoustic phonons in piezoelectric cubic materials
Research output: Contribution to journal › Journal article – Annual report year: 2015 › Research › peer-review

Acoustic gain in piezoelectric semiconductors at ε-near-zero response
Research output: Contribution to journal › Journal article – Annual report year: 2014 › Research › peer-review

Acoustic wave propagation and stochastic effects in metamaterial absorbers
Research output: Contribution to journal › Journal article – Annual report year: 2014 › Research › peer-review

An Adaptable Robot Vision System Performing Manipulation Actions With Flexible Objects
Research output: Contribution to journal › Journal article – Annual report year: 2014 › Research › peer-review

Differential Geometry Applied to Rings and Möbius Nanostructures
Research output: Chapter in Book/Report/Conference proceeding › Book chapter – Annual report year: 2014 › Research › peer-review

Epitaxial growth of quantum dots on InP for device applications operating at the 1.55 μm wavelength range
Research output: Contribution to journal › Conference article – Annual report year: 2014 › Research › peer-review

Exergy costing for energy saving in combined heating and cooling applications
Research output: Contribution to journal › Journal article – Annual report year: 2014 › Research › peer-review

Extraordinary absorption of sound in porous lamella-crystals
Research output: Contribution to journal › Journal article – Annual report year: 2014 › Research › peer-review

Geometry optimization of tubular dielectric elastomer actuators with anisotropic metallic electrodes
Research output: Contribution to journal › Conference article – Annual report year: 2014 › Research › peer-review

Maximum absorption by homogeneous magneto-dielectric sphere
Research output: Contribution to journal › Journal article – Annual report year: 2014 › Research › peer-review

Minimal model for spoof acoustoelastic surface states
Research output: Contribution to journal › Journal article – Annual report year: 2014 › Research › peer-review

Modelling the acoustical response of lossy lamella-crystals
Research output: Contribution to journal › Journal article – Annual report year: 2014 › Research › peer-review

Purcell effect for finite-length metal-coated and metal nanowires
Research output: Contribution to journal › Journal article – Annual report year: 2014 › Research › peer-review

An Electromechanical Model for a Dielectric ElectroActive Polymer Generator
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2013 › Research › peer-review

Design optimization of a linear actuator
Research output: Contribution to journal › Conference article – Annual report year: 2013 › Research › peer-review

Metadevices for the confinement of sound and broadband double-negativity behavior
Research output: Contribution to journal › Journal article – Annual report year: 2013 › Research › peer-review
Near infrared photoacoustic detection of heptane in synthetic air
Research output: Contribution to journal › Journal article – Annual report year: 2013 › Research › peer-review

Spontaneous Emission Enhancement at Finite-length Metal
Research output: Contribution to journal › Conference article – Annual report year: 2013 › Research › peer-review

Computational Methods for Electromechanical Fields in Self-Assembled Quantum Dots
Research output: Contribution to journal › Journal article – Annual report year: 2012 › Research › peer-review

Dynamic Electromechanical Modelling of Dielectric Elastomer Actuators With Metallic Electrodes
Research output: Contribution to journal › Journal article – Annual report year: 2012 › Research › peer-review

Dynamic Modeling of Phase Crossings in Two-Phase Flow
Research output: Contribution to journal › Journal article – Annual report year: 2012 › Research › peer-review

Flow-induced resonance shift in sonic slit array metamaterials
Research output: Contribution to journal › Journal article – Annual report year: 2012 › Research › peer-review

Gap-plasmon nanoantennas and bowtie resonators
Research output: Contribution to journal › Journal article – Annual report year: 2012 › Research › peer-review

Laplace boundary-value problem in paraboloidal coordinates
Research output: Contribution to journal › Journal article – Annual report year: 2012 › Research › peer-review

Learning peg-in-hole actions with flexible objects
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2012 › Research › peer-review

Modeling Frequency Response of Photoacoustic Cells using FEM for Determination of N-heptane Contamination in Air: Experimental Validation
Research output: Contribution to journal › Journal article – Annual report year: 2012 › Research › peer-review

Modeling Heterostructures with Schrödinger–Poisson–Navier Iterative Schemes, Effect of Carrier Charge, and Influence of Electromechanical Coupling
Research output: Contribution to journal › Journal article – Annual report year: 2012 › Research › peer-review

Modelling of the Heating Process in a Thermal Screw
Research output: Contribution to journal › Conference article – Annual report year: 2012 › Research › peer-review

Multilayer piezoelectric transducer models combined with Field II
Research output: Contribution to journal › Journal article – Annual report year: 2012 › Research › peer-review

Simulation of flexible objects in robotics
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2012 › Research › peer-review

Simultaneous estimation of material properties and pose for deformable objects from depth and color images
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2012 › Research › peer-review
Spatial impulse response of a rectangular double curved transducer
Research output: Contribution to journal › Journal article – Annual report year: 2012 › Research › peer-review

Strain in inhomogeneous InAs/GaAs quantum dot structures
Research output: Contribution to journal › Conference article – Annual report year: 2012 › Research › peer-review

Strong curvature effects in Neumann wave problems
Research output: Contribution to journal › Journal article – Annual report year: 2012 › Research › peer-review

Tunable acoustic double negativity metamaterial
Research output: Contribution to journal › Journal article – Annual report year: 2012 › Research › peer-review

An outline for an intelligent system performing peg-in-hole actions with flexible objects
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2011 › Research › peer-review

Bending-induced strain and curvature effects on semiconductor nanowire electronic eigenstates
Research output: Contribution to journal › Conference article – Annual report year: 2011 › Research › peer-review

Comparison of Atomistic and Continuum Quantum-Dot Elastic Models and Implications for Optoelectronic Properties
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2011 › Research › peer-review

Comparison of continuum and atomistic methods for the analysis of InAs/GaAs quantum dots
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2011 › Research › peer-review

Control of the input efficiency of photons into solar cells with plasmonic nanoparticles
Research output: Contribution to journal › Journal article – Annual report year: 2011 › Research › peer-review

Detuned electrical dipoles metamaterial with bianisotropic response
Research output: Contribution to journal › Journal article – Annual report year: 2011 › Research › peer-review

Effect of strain on optical properties of bent nanowires
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2011 › Research › peer-review

Effects of hydrostatic strain on eigenstates of Möbius strips
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2011 › Research › peer-review

Electromechanical phenomena in semiconductor nanostructures
Research output: Contribution to journal › Review – Annual report year: 2011 › Research › peer-review

Experimental determination of the refractive index of metamaterials
Research output: Contribution to journal › Journal article – Annual report year: 2011 › Research › peer-review

Finite Element Simulation of Photoacoustic Pressure in a Resonant Photoacoustic Cell Using Lossy Boundary Conditions
Research output: Contribution to journal › Journal article – Annual report year: 2011 › Research › peer-review

Möbius semiconductor nanostructures and deformation potential strain effects
Research output: Contribution to journal › Journal article – Annual report year: 2011 › Research › peer-review
Optical transparency by detuned electrical dipoles
Research output: Contribution to journal › Journal article – Annual report year: 2011 › Research › peer-review

Plasmonic metamaterial wave retarders in reflection by orthogonally oriented detuned electrical dipoles
Research output: Contribution to journal › Journal article – Annual report year: 2011 › Research › peer-review

Scattering suppression and field enhancement of the fundamental plasmonic mode in bent nanorods
Research output: Contribution to journal › Journal article – Annual report year: 2011 › Research › peer-review

Strain and piezoelectric effects in quantum-dot structures
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2011 › Research › peer-review

Analysis of optical properties of strained semiconductor quantum dots for electromagnetically induced transparency
Research output: Contribution to journal › Journal article – Annual report year: 2010 › Research › peer-review

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

Band-mixing and strain effects in InAs/GaAs quantum rings
Research output: Contribution to journal › Journal article – Annual report year: 2010 › Research › peer-review

Calibration of Field II using a Convex Ultrasound Transducer
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2010 › Research › peer-review

Comparison of wurtzite atomistic and piezoelectric continuum strain models: Implications for the electronic band structure
Research output: Contribution to journal › Conference article – Annual report year: 2010 › Research › peer-review

Crystal orientation effects on wurtzite quantum well electromechanical fields
Research output: Contribution to journal › Journal article – Annual report year: 2010 › Research › peer-review

Cylindrical symmetry and spurious solutions in eight band k·p theory
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2010 › Research › peer-review

Detuned Electrical Dipoles for Plasmonic Sensing
Research output: Contribution to journal › Journal article – Annual report year: 2010 › Research › peer-review

Dynamic Electro-Mechanical Modelling of Dielectric EAP
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2010 › Research › peer-review

Electron conductance in curved quantum structures
Research output: Contribution to journal › Journal article – Annual report year: 2010 › Research › peer-review

Electrostriction Coefficients of GaN, AlN, MgO and ZnO in the Wurtzite Structure from First-Principles
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2010 › Research › peer-review
Parameter sensitivity study of a Field II multilayer transducer model on a convex transducer
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2009 › Research › peer-review

Spurious Solutions in the Multiband Effective Mass Theory Applied to Low Dimensional Nanostructures
Research output: Contribution to journal › Review – Annual report year: 2009 › Research › peer-review

Crystal orientation effects on the piezoelectric field of strained zinc-blende quantum-well structures
Research output: Contribution to journal › Journal article – Annual report year: 2008 › Research › peer-review

Electromechanical effects in electron structure for GaN/AlN quantum dots
Research output: Contribution to journal › Journal article – Annual report year: 2008 › Research › peer-review

Electromechanical fields in GaN/AlN wurtzite quantum dots
Research output: Contribution to journal › Conference article – Annual report year: 2008 › Research › peer-review

Electronic properties of nanowire superlattices in the presence of strain and magnetic-field effects
Research output: Contribution to journal › Journal article – Annual report year: 2008 › Research › peer-review

Electronic Properties of Semiconductor Nanowires
Research output: Contribution to journal › Review – Annual report year: 2008 › Research › peer-review

Electron states in curved quantum structures with varying radius
Research output: Contribution to journal › Conference article – Annual report year: 2008 › Research › peer-review

Electrostriction in GaN/AlN heterostructures
Research output: Contribution to journal › Conference article – Annual report year: 2008 › Research › peer-review

Flow acoustics in solid-fluid structures.
Research output: Contribution to journal › Journal article – Annual report year: 2008 › Research › peer-review

Modelling Acoustic Wave Propagation in Axisymmetric Varying-Radius Waveguides
Research output: Contribution to journal › Journal article – Annual report year: 2008 › Research › peer-review

Modelling nonlinear electro-mechanical effects in nano-heterostructures using domain-decomposition methods
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2008 › Research › peer-review

Nonlinearities in ultrasonic flow measurement
Research output: Contribution to journal › Journal article – Annual report year: 2008 › Research › peer-review

Physics-Based Mathematical Models for Nanotechnology
Research output: Contribution to journal › Journal article – Annual report year: 2008 › Research › peer-review

Piezoelectric models for semiconductor quantum dots
Research output: Contribution to journal › Journal article – Annual report year: 2008 › Research › peer-review

Plasmonic effects in dynamic tunable metal-dielectric composites
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2008 › Research › peer-review
Testing of a one dimensional model for Field II calibration
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2008 › Research › peer-review

Nonlinear gain suppression in semiconductor lasers due to carrier heating
Research output: Contribution to journal › Journal article – Annual report year: 1991 › Research › peer-review

Projects:

Photonic quantum technologies in structured environments
Project: PhD

Ulineær Dynamik i Halvlederlasere
Project: PhD

Opto-elektroniske komponenter baseret på kvante-strukturer
Project: PhD

k.p Theory of Two-Dimensional Materials
Project: PhD

Dark-field hyperlens: high-contrast subwavelength imaging in optics and acoustics
Project: PhD

Quantum Hall effects in nanostructured graphene
Project: PhD

Non-linear ultrasound imaging
Project: PhD

Slow light enhancement and limitations in periodic media
Project: PhD

Negative Index Materials and Plasmonic Antennas Based Nanocoupler
Project: PhD

Modelling of Ultrafast Semiconductor Components
Project: PhD

Topology Optimization of Surface Acoustic Wave Devises
Project: PhD

Semiconductor Quantum Dot Devices for Optical Signal Processing
Project: PhD

Calibrated modelling of ultrasonic fields using Field II
Project: PhD

Silicon-based Nanophotonic Structures for Controlling Light
Project: PhD
**Light-matter Interaction in Nano-structured Materials**  
*Project: PhD*

**Gain dynamics in quantum dot structures**  
*Project: PhD*

**Metal-dielectric-metal waveguides as ultrafast CMOS compatible modulators**  
*Project: PhD*

**Quantum Kinetics of charge carriers in quantum dots: applications to slow light and light amplification**  
*Project: PhD*

**Optical Signal Processing using Four Wave Mixing**  
*Project: PhD*

**Development of nondestructive inspection tools for cultural heritage artefacts with 3D THz imaging**  
*Project: PhD*

**All-optical transistor / Optisk transistør**  
*Project: PhD*

**Modeling of Coupled Nano-Cavity Lasers**  
*Project: PhD*

**Extreme nonlinear THz optics of metals**  
*Project: PhD*

**QuAntum dot Energy level Engineering for laser applicatioNs on InP and Si platforms**  
*Project: Research*

**Activities:**

*Presentation title: “A valence force field-Monte Carlo algorithm for quantum dot growth modeling”.*  
*Activity: Talks and presentations › Conference presentations*