

# Curriculum Vitae

## Thomas Garm Pedersen

Department of Materials and Production  
Aalborg University  
Skjernvej 4A  
DK-9220 Aalborg East  
Denmark

### Personal data

Position: Professor  
Born: 26 March 1969  
Nationality: Danish  
Married to: Gitte Garm Pedersen  
Children: Julie (born 1998), Luna (born 2000) and Jacob (born 2003)  
Address: Nygårdsparken 8, DK-9260 Gistrup, Denmark  
Phone: +45 4160 1624  
e-mail: tgp@mp.aau.dk

### Education

1993 M.Sc. in engineering (optics)  
1996 Ph.D. in physics  
2000 University pedagogics for assistant lecturers  
2011 Research Management CBS-Simi

### Employment and visiting positions:

August - November 1995: Visit at Faculty of Engineering Science, Osaka University, Japan.

September 1996 - December 1997: Post Doc. position, Optics and Fluid Dynamics department, Risø, Denmark.

January 1998 - January 2001: Assistant Professor, Institute of Physics, Aalborg University, Denmark.

February 2001 - May 2008: Associate Professor, Dept. of Physics and Nanotechnology, Aalborg University, Denmark.

June 2008 - September 2010: Professor MSO, Dept. of Physics and Nanotechnology, Aalborg University, Denmark.

October 2010 - : Full Professor "Theoretical Solid State Physics", Dept. of Physics and Nanotechnology, Aalborg University, Denmark.

## Teaching experience:

Teacher of: Quantum mechanics  
Optics  
Computer simulations in physics  
Lab. course  
Optical properties of matter I  
Optical properties of matter II (optics of solids)  
Advanced quantum mechanics  
Modern Physics: Introduction  
Mechanics  
Thermodynamics  
Semiconductor Physics  
Statistical Mechanics  
Electric, Optical and Magnetic Properties of Nanostructures  
Nano Electronics  
Surface Science  
Mathematics: Vector and Fourier analysis  
Modern Physics: Relativity, Nuclei and Particles  
Classical Mechanics

Supervisor of: **19 Ph.D. students:**  
Kim Jespersen (finished 4/4 2003)  
Thomas B. Lynge (finished 10/11 2004)  
Abbas Zarifi (finished 20/8 2008)  
Peter K. Kristensen (finished 7/11 2008)  
Christian Fisker (finished 3/11 2010)  
Troels F. Rønnow (finished 5/9 2011)  
Rasmus V.S. Jensen (finished 5/10 2012)  
Thøger K. Jensen (finished 1/2 2013)  
Mads Lund Trolle (finished 9/12 2014)  
Yao-Chung Tsao (finished 16/4 2015)  
Morten R. Thomsen (finished 31/10 2016)  
Søren J. Brun (finished 15/11 2016)  
René Petersen (finished 7/12 2017)  
Farzad Bonabi (finished 9/5 2019)  
Jonas Have (finished 7/10 2019)  
Enok Skjølstrup (finished 2/3 2020)  
Hans Ulrik Ulriksen (finished 22/4 2020)  
Høgne Carlsson Kamban (finished 31/5 2021)  
Mikkel Ohm Sauer (finished 9/10 2023)

**11 Post Docs:**

Kaizheng Zhu  
Peter K. Kristensen  
Jesper Jung  
Jesper Goor Pedersen  
Christian Fisker  
Mads Lund Trolle  
Darko Dimitrovski  
Stephen R. Power  
Hector Mera  
Fábio Hipólito  
Alireza Taghizadeh

More than 20 masters student projects in physics and engineering

Supervisor for pedagogical training of Asso. Prof. Leonid Gurevich (AAU) and Post. Doc. Jesper Jung (AAU).

Lecturer at the Danish Graduate School in Nonlinear Science (1999 and 2000).

Organizer and lecturer at Ph.D course "Optics at the nanoscale" (AAU 2008).

Organizer and lecturer at Ph.D course "Simulation and char. at the nanoscale" (AAU 2010).

Organizer and lecturer at Ph.D course "Solar cell physics and applications" (AAU 2011).

Organizer and lecturer at Ph.D course "DFT and DFT-based tight-binding" (AAU 2013).

Organizer and lecturer at Ph.D course "Excited states and optical response th." (AAU 2014).

Organizer and lecturer at Ph.D course "Nonlinear nano-optics" (AAU 2015).

Organizer and lecturer at Ph.D course "Numerical Physics" (AAU 2016).

Organizer and lecturer at Ph.D course "Numerical Physics" (AAU 2017).

Organizer and lecturer at Ph.D course "Antenna models/Graphene plasmons" (AAU 2019).

Lecturer at Ph.D course "Topics in Mathematical Physics" (AAU 2012).

Author of lecture notes "Electric, Optical and Magnetic Properties of Nanostructures" (500 pages)

**Honors:**

"Teacher of the year" in physics, mathematics and computer science 2001.

Danish Optical Society Award 2004 for "Excellent contributions to modelling of optical and electronic phenomena".

"Teacher of the year" in physics and mathematics 2017.

Knighted Order of the Dannebrog "Ridder af Dannebrog" 2021.

### **Invited talks:**

"Optical Data Storage in Liquid-Crystalline Azobenzene Side-Chain Polymers", E-CLEO, Sep. 2000, Nice, France.

"Linear and Nonlinear Optical Properties of Excitons in Carbon Nanotubes", EMRS, May 2004, Strasbourg, France.

"Linear and Nonlinear Optical Properties of Carbon Nanotubes", Mathematical aspects of transport in mesoscopic systems, Dec. 2008, Dublin, Ireland.

"Modeling of Plasmon-Enhanced solar Cells"  
Nordic Semiconductor Meeting, Jun. 2011, Fuglsø, Denmark.

"Transport Properties of Graphene Antidot Lattices"  
1st Int. Conf. on Self Assembly and Molecular Electronics, Oct. 2012, Aalborg, Denmark.

"Excitons in external fields"  
QuantaLab Workshop 2017, Sep. 2017, Braga, Portugal.

"Excitonic Stark effect and exciton ionization in transition-metal dichalcogenides"  
OSI 2019, Jun. 2019, León, Mexico.

Several talks at universities and other research institutions

### **Referee service:**

Nature  
Nature Nanotechnology  
Nature Physics  
Nature Communications  
Physical Review Letters  
Physical Review B  
Physical Review E  
Optics Letters  
Applied Physics Letters  
Journal of the Optical Society of America B  
Journal of Optics A  
Optical Materials  
Synthetic Metals  
Materials Science and Engineering B  
Journal of Physics: Condensed Matter  
Journal of Physics D: Applied Physics  
New Journal of Physics  
Semiconductor Science and Technology  
IEEE Electron Device Letters  
ACS Nano

Reviewer for The National Science Foundation (NSF), USA

Reviewer for The Department of Energy (DoE), USA

**Research grants (recipient or co-recipient):**

SNF grant 9901384, duration 1 year (2000). Individual share: 1/6

SNF grant 9903273, duration 3 years (2000-2002). Individual share: 1/6

STVF talent grant # 56-00-0290, duration 2 years (2001-2002).

STVF grant, duration 3 years (2003-2005), with P.M. Johansen and K. West.

**“Sensitizing erbium with nanodots – SERBINA”**

FTP grant, duration 3 years 2008-2011, with A. Nylandsted Larsen, K. Pedersen and B. Bech Nielsen.

**“Nanoengineered Graphene”**

FTP grant, duration 3 years 2008-2011, with P. Bøggild, R. Dunin Borkowski, A.-P. Jauho and M. Brandbyge.

**“INLED (Intelligent LED)”**

High Technology Foundation grant, duration 3 years 2008-2011, collaboration between Dept. of Physics and Nanotechnology (AAU), Inst. of Energy Technology (AAU), Risø/DTU photonics and Martin Professional A/S.

**“PLATOS Silicon thin-film solar cells”**

VKR grant, duration 5 years 2009-2013, with A. Nylandsted Larsen, K. Pedersen and B. Bech Nielsen.

**“Controlling the electronic properties of graphene by hydrogen functionalization”**

Lundbeck Foundation grant, duration 2 years 2011-2013, with L. Hornekær, P. Hofmann and I. Stensgaard.

**“THINC Thin-film solar cell based on nanocrystalline silicon and structured backside reflectors”**

SRC grant, duration 5 years 2011-2015, with A. Nylandsted Larsen, K. Pedersen, J.W. Larsen and B. Bech Nielsen.

**“CORPE Center of reliable power electronics”**

SRC grant, duration 5 years 2011-2015, with participation from 5 University Institutions and 4 major companies.

**“Center for Nanostructured Graphene”**

Center of Excellence grant, duration 6 years 2012-2017, with A.-P. Jauho, M. Brandbyge, N.A. Mortensen, P. Bøggild, K. Almdal, A. Kristensen, S. Ndoni, R. Dunin-Borkowski and K. S. Thygesen.

**“Center for Nanostructured Graphene”-extension**

Center of Excellence extension-grant, duration 4 years 2018-2021, with A.-P. Jauho, M. Brandbyge, N.A. Mortensen, P. Bøggild, K. Almdal, P.U. Jepsen, S. Ndoni, T. Hansen and K. S. Thygesen.

**“QUSCOPE Quantum scale optical processes”**

VKR center, duration 5 years 2014-2018, with K. Mølmer and L. Bojer Madsen.

**Primary outside collaborators:**

A. Nylandsted Larsen, B. Bech Nielsen, M. M. Kjeldsen, N. E. Christensen, P. Modak, Dept. of Physics and Astronomy, AU.

C. Uhrenfeldt, B. Johansen, Dept. of Physics and Astronomy, AU.

B. Julsgaard, Y.-W. Lu, J. Chevallier, P. Balling, Dept. of Physics and Astronomy, AU.

H. Cornean, M.H. Brynildsen, Dept. of Mathematical Sciences, AAU.

P. Duclos, B. Ricaud, CPT-CNRS, Marseille, France.

G. Nenciu, Faculty of Physics, University of Bucharest, Romania.

D. Yu, R. Wimmer, Dept. of Biotechnology, Chemistry and Env. Engineering, AAU.

A.-P. Jauho, C. Flindt, N. A. Mortensen, K.S. Thygesen, DTU Physics, DTU.

P. Bøggild, R. Dunin Borkowski, J. A. Fürst, M. Brandbyge, DTU Physics, DTU.

L. Hornekær, R. Balog, P. Hofmann, B. Hammer, iNANO, AU

G. Seifert, TU Dresden, Germany

H. Mera and B.K. Nikolic, University of Delaware, USA

V.M. Pereira, National University of Singapore, Singapore

N.M.R. Peres, University of Minho, Braga, Portugal

M. Massicotte, F. Vialla, F. Javier García de Abajo, ICFO, Barcelona, Spain.

**Administration and organization:**

Member of Interdisciplinary Nano Science Center iNANO.

Member of the EU COST action committee Optical Data Storage (1998-2002)

Member of Local organizing committee “Optics of Surface and Interfaces OSI VI” conference (2005).

Member of Institute Board at Dept. of Physics and Nanotechnology, AAU (2005-2010)

Member of the Study Board for Natural Sciences, AAU (2005-2007)

Member of the EU COST action “NanoTP: Designing Novel Materials for Nanodevices: From Theory to Practice” (2009-2011)

Member Danish Bibliometric Research Indicator Board for Physics (2014-)

Service on 10 boards of opponents for PhD defenses.

## List of publications (Thomas Garm Pedersen)

### Ph.D. thesis

**T. Garm Pedersen**, "Microscopic theory of the linear optical properties of quantum dots and quantum dot arrays".

### Popular accounts

1. **T. Garm Pedersen**, "Nanoledningers optiske egenskaber", *Aktuel Naturvidenskab* p. 10, Nov. 1999. (in Danish)
2. **T. Garm Pedersen**, T.B. Lyngé, P.M. Johansen and K. Jespersen, "Electro-optic polymers", *DOPS-NYT* 2, p. 34 (2002).
3. K. Pedersen, **T. Garm Pedersen**, T.B. Kristensen, P. Morgen, Z. Li and S.V. Hoffmann, "Nonlinear optics and photoemission in metallic quantum wells", *DOPS-NYT* 2, p. 30 (2002).
4. P.K. Kristensen, **T. Garm Pedersen** and P.M. Johansen, "Polymer light emitting diodes", *DOPS-NYT* 2, p. 9 (2003).
5. K. Pedersen, S.I. Bozhevolnyi and **T. Garm Pedersen**, "Nano Optik", *Kvant* (2004) (in Danish).
6. **T. Garm Pedersen**, "Optical properties of conjugated polymers and nanotubes", *DOPS-NYT* 1, p. 11 (2005).
7. **T. Garm Pedersen** "*Organiske nanolyddioder*" i *Nanoteknologi - 12 historier om den nyeste danske nanoforskning* (<http://www.inano.dk/fileadmin/inano/iNANO-system/gymnasieinfo/gymnasiehaefte-final-260506.pdf>), p. 38 (2006). (in danish).
8. **T. Garm Pedersen**, "Tynd, tyndere, graphen", *Aktuel Naturvidenskab* p. 22 Jul. 2009. (in Danish)

### Scientific papers

1. O. Keller and **T. Garm**, "Local field calculation for a spherical quantum dot with parabolic confinement", *Phys. Scripta* T54, 115 (1994).
2. O. Keller and **T. Garm**, "Retarded Electromagnetic response of a spherical quantum dot: A self-consistent field calculation", *Phys. Rev.* B52, 4670 (1995).
3. O. Keller and **T. Garm**, "Self-consistent local field formalism for quantum dots and quantum dot arrays", *Coherence and Quantum Optics VII*, Eds. J. Eberly, L. Mandel and E. Wolf (Plenum, NY, 1996) p. 621.
4. **T. Garm**, "Exciton states in spherical parabolic GaAs quantum dots", *J. Phys.: Condens. Matter* 8, 5725 (1996).
5. O. Keller and **T. Garm**, "Intraparticle and interparticle radiative coupling in quantum dot arrays: influence of a magnetic field", *J. Opt. Soc. Am.* B13, 2121 (1996).
6. **T. Garm Pedersen** and P.M. Johansen, "Mean-field theory of photoinduced molecular reorientation in azobenzene liquid crystalline side-chain polymers", *Phys. Rev. Lett.* 79, 2470 (1997).

7. **T. Garm Pedersen**, P.M. Johansen, N.C.R. Holme, P.S. Ramanujam, and S. Hvilsted, "Mean-field theory of photoinduced formation of surface reliefs in side-chain azobenzene polymers", *Phys. Rev. Lett.* 80, 89 (1998).
8. **T. Garm Pedersen**, P.M. Johansen, N.C.R. Holme, P.S. Ramanujam, and S. Hvilsted, "Theoretical model of photoinduced anisotropy in liquid crystalline azobenzene side-chain polyesters", *J. Opt. Soc. Am.* B15, 1120 (1998).
9. **T. Garm Pedersen** and P.M. Johansen, "Mean-field theory of optical storage in liquid crystalline side-chain polymers", *Opt. Mat.* 9, 212 (1998).
10. P.M. Johansen, H.C. Pedersen, **T. Garm Pedersen**, and J. Wyller, "Cascading solution of the space-charge field problem in ac field biased photorefractive media", *J. Opt. Soc. Am.* B15, 1168 (1998).
11. **T. Garm Pedersen**, P.S. Ramanujam, P.M. Johansen, and S. Hvilsted, "Quantum theory and experimental studies of absorption spectra and photoisomerization of azobenzene polymers" *J. Opt. Soc. Am.* B15, 2721, (1998).
12. K. Pedersen, **T. Garm Pedersen**, T.B. Kristensen, and P. Morgen, "Second-harmonic generation spectroscopy on quantum wells: Au on Si(111)", *Appl. Phys.* B68, 637 (1999).
13. T.B. Kristensen, K. Pedersen, and **T. Garm Pedersen**, "Optical second-harmonic generation from a Au wedge on Si(111)", *Phys. Stat. Sol.* 175, 195 (1999).
14. **T. Garm Pedersen**, K. Pedersen, and T.B. Kristensen, "Optical second-harmonic generation from Ag quantum wells on Si(111): Experiment and theory", *Phys. Rev.* B60, R13997 (1999).
15. **T. Garm Pedersen**, K. Pedersen, and T.B. Kristensen, "Optical second-harmonic generation as a probe of quantum well states in ultrathin Au and Ag films deposited on Si(111)", *Thin Solid Films* 364, 86 (2000).
16. **T. Garm Pedersen**, K. Pedersen, and T.B. Kristensen, "Theory of optical second-harmonic generation from quantum well states in ultrathin metal films on semiconductors", *Phys. Rev.* B61, 10255 (2000).
17. **T. Garm Pedersen**, P.M. Johansen, and H. C. Pedersen, "Characterization of azobenzene chromophores for reversible optical data storage: molecular quantum calculations" *J. Opt. A: Pure Appl. Opt.* 2, 272 (2000).
18. **T. Garm Pedersen**, P.M. Johansen, and H. C. Pedersen, "Particle-in-a-box model of one-dimensional excitons in conjugated polymers" *Phys. Rev.* B61, 10504 (2000).
19. **T. Garm Pedersen**, "Particle-in-a-box model of exciton absorption and electroabsorption in conjugated polymers", *Phys. Rev.* B62, 15424 (2000).
20. **T. Garm Pedersen**, K. Jespersen, and P.M. Johansen, "Rotational diffusion model of orientational enhancement in AC field biased photorefractive polymers", *Opt. Mat.* 18, 95 (2001).
21. K. Pedersen, T.B. Kristensen, **T. Garm Pedersen**, P. Morgen, Z. Li, and S.V. Hoffmann, "Optical second harmonic generation and photoemission from quantum well states in thin Ag films on Si(111)", *Surf. Sci.* 482-485, 735 (2001).
22. **T. Garm Pedersen**, K. Pedersen, and T.B. Kristensen, "Optical matrix elements in tight-binding calculations", *Phys. Rev.* B63, 201101(R) (2001).
23. E. V. Podivilov, B. I. Sturman, P. M. Johansen, and **T. Garm Pedersen**, "On description of the photorefractive response in polymers", *Opt. Lett.* 26, 226 (2001).



24. H.C. Pedersen, P.M. Johansen, and **T. Garm Pedersen**, "Analytical modeling of two beam coupling during grating translation in photorefractive polymers", *Opt. Commun.* 192, 377 (2001).
25. J. Wyller, **T. Garm Pedersen**, and P.M. Johansen, "Mathematical properties of the rotational diffusion equation" *J. Phys. A.* 34, 6531 (2001).
26. **T. Garm Pedersen** and T.B. Lyngé, "Free-carrier and exciton Franz-Keldysh theory for one-dimensional semiconductors", *Phys. Rev.* B65, 085201 (2002).
27. K. Pedersen, T.B. Kristensen, **T. Garm Pedersen**, P. Morgen, Z. Li, and S.V. Hoffmann, "Thin noble metal films on Si(111) investigated by optical second-harmonic generation and photoemission", *Appl. Phys.* B74, 677 (2002).
28. K. Pedersen, T. B. Kristensen, **T. Garm Pedersen**, T. Jensen, P. Morgen, Z. Li, and S.V. Hoffman, "Photoemission and optical second-harmonic generation from Ag quantum wells on Si(111)7x7", *Phys. Scripta* T101, 110 (2002).
29. **T. Garm Pedersen**, K. Jespersen, P.M. Johansen, and J. Wyller, "DC and AC electro-optic response of chromophores in a viscoelastic polymer matrix: analytical model", *J. Opt. Soc. Am.* B19, 2622 (2002).
30. **T. Garm Pedersen** and T.B. Lyngé, "Analytic Franz-Keldysh effect in one-dimensional polar semiconductors", *J. Phys.: Condens. Matter* 15, 3813 (2003).
31. **T. Garm Pedersen**, K. Pedersen, P.K. Kristensen, J. Rafaelsen, N. Skivesen, Z. Li, and S.V. Hoffman, "Theoretical and experimental studies of photoemission from Al quantum wells on Si(111)", *Surf. Sci.* 516, 127, (2002).
32. K. Pedersen, T. B. Kristensen, **T. Garm Pedersen**, P. Morgen, Z. Li, and S.V. Hoffman, "Optimum Cu buffer layer thickness for growth of metal overlayers on Si(111)", *Phys. Rev.* B66, 153406 (2002).
33. K. Pedersen, T. B. Kristensen, **T. Garm Pedersen**, T. Jensen, P. Morgen, Z. Li, and S.V. Hoffman, "Characterisation of Au films on Si(111) root(3) x root(3)-Au by photoemission and optical second-harmonic generation", *Surf. Sci.* 523, 21 (2003).
34. **T. Garm Pedersen** and T.B. Lyngé, "Self-consistent model of high-field electro-optics in conjugated polymers", *Mat. Sci. Eng. B* 99, 563 (2003).
35. **T. Garm Pedersen** and T.B. Lyngé, "Ab initio tight-binding study of exciton optical and electro-optic properties of conjugated polymers", *Comp. Mat. Sci.* 27, 123 (2003).
36. T.B. Lyngé and **T. Garm Pedersen**, "Analytic and numerical electro-optic models of poly(*para*-phenylene)", *Synth. Met.* 138, 329 (2003).
37. T.B. Lyngé and **T. Garm Pedersen**, "Analytic expressions for linear optical susceptibilities of conjugated polymers", *Phys. Rev.* B67, 075206 (2003).
38. **T. Garm Pedersen**, "Variational approach to excitons in carbon nanotubes", *Phys. Rev.* B67, 073401 (2003).
39. **T. Garm Pedersen**, "Analytic calculation of the optical properties of graphite", *Phys. Rev.* B67, 113106 (2003).
40. K. Pedersen, P. Morgen, **T. Garm Pedersen**, Z. Li, and S.V. Hoffman, "Epitaxial growth of thin Ag and Au films on Si(111) using copper silicide buffer layers", *J. Vac. Sci. Technol.* A21, 1431 (2003).
41. K. Jespersen, **T. Garm Pedersen**, and P.M. Johansen, "Electro-optic response of chromophores in a viscoelastic polymer matrix to a combined DC and AC poling field", *J. Opt. Soc. Am.* B20, 2179 (2003).

42. K. Pedersen, P.K. Kristensen, J. Rafaelsen, N. Skivesen, **T. Garm Pedersen**, P. Morgen, Z. Li, and S.V. Hoffman, "Second-harmonic generation and photoemission from Al quantum wells on Si(111)", *Thin Solid Films*, 443, 78 (2003).
43. D. Apitz, C. Svanberg, K.G. Jespersen, **T. Garm Pedersen**, and P.M. Johansen, "Orientational dynamics in dye-doped organic electro-optic materials", *J. Appl. Phys.* 94, 6263 (2003).
44. **T. Garm Pedersen**, "Density-functional-based tight-binding calculation of excitons in conjugated polymers", *Phys. Rev. B* 69, 075207 (2004).
45. **T. Garm Pedersen**, "Exciton effects in carbon nanotubes", *Carbon* 42, 1007 (2004).
46. **T. Garm Pedersen**, "Tight-binding theory of Faraday rotation in graphite", *Phys. Rev. B* 68, 245104 (2003).
47. T.B. Lyngé and **T. Garm Pedersen**, "Density-functional-based tight-binding approach to phonon spectra of conjugated polymers", *Phys. Stat. Sol. (b)* 241, 1005 (2004).
48. H. Cornean, P. Duclos, and **T. Garm Pedersen**, "One dimensional models of excitons in carbon nanotubes", *Few Body Systems* 34, 155 (2004).
49. T.B. Lyngé and **T. Garm Pedersen**, "Density-functional-based tight-binding approach to polarons in conjugated polymers", *Comp. Mat. Sci.* 30, 212 (2004).
50. **T. Garm Pedersen**, T.B. Lyngé, P.K. Kristensen, and P.M. Johansen, "Theoretical study of conjugated porphyrin polymers", *Thin Solid Films* 182, 477 (2005).
51. **T. Garm Pedersen**, "Biexcitons in carbon nanotubes", *Fullerenes, Nanotubes and Carbon Nanostructures*, 13, 33 (2005).
52. **T. Garm Pedersen**, K. Pedersen, H. Cornean, and P. Duclos, "Stability and signatures of biexcitons in carbon nanotubes", *Nano Lett.* 5, 291 (2005).
53. **T. Garm Pedersen**, "Quantum size effects in ZnO nanowires", *Phys. Stat. Sol. (c)* 2, 4026 (2005).
54. P.K. Kristensen, J. Rafaelsen, **T. Garm Pedersen**, and K. Pedersen, "Diffusion voltage in polymer light emitting diodes measured with electric field induced second harmonic generation", *Phys. Stat. Sol. (c)* 2, 3993 (2005).
55. H.D. Cornean, G. Nenciu, and **T. Garm Pedersen**, "The Faraday effect revisited: General theory", *J. Math. Phys.* 47, 013511 (2006).
56. P.A. Baeza, K. Pedersen, J. Rafaelsen, **T. Garm Pedersen**, P. Morgen, and Z. Li, "Epitaxial growth of Al on Si(111) with Cu buffer layer", *Surf. Sci.* 600, 610 (2006).
57. **T. Garm Pedersen**, "Optical excitations in C<sub>60</sub>/PPV composites", *J. Non-cryst. Solids*, 352, 2488 (2006).
58. K. Pedersen, **T. Garm Pedersen**, and P. Morgen, "Surface and interface resonances in second harmonic generation from metallic quantum wells on Si(111)", *Phys. Rev. B* 73, 125440 (2006).
59. A. Zarifi and **T. Garm Pedersen**, "Analytic approach to the linear susceptibility of zigzag carbon nanotubes", *Phys. Rev. B* 74, 155434 (2006).
60. P.K. Kristensen, **T. Garm Pedersen**, K. Zhu, and D. Yu, "Energy transfer from poly-fluorene based Polymer to Europium Complex", *Eur. Phys. J. Appl. Phys.* 37, 57 (2007).
61. **T. Garm Pedersen**, "Exact polarizability of low-dimensional excitons", *Solid State Commun.* 141, 569 (2007).
62. **T. Garm Pedersen** and H. Cornean, "Optical second harmonic generation from Wannier Excitons", *Europhysics Letters* 78, 27005 (2007).

63. A. Zarifi, C. Fisker, and **T. Garm Pedersen**, "Theoretical study of the quadratic electro-optic effect in semiconducting zigzag carbon nanotubes", *Phys. Rev. B* 76, 45403 (2007).
64. H.D. Cornean, **T. Garm Pedersen**, and B. Ricaud, "Perturbative vs. variational methods in the study of carbon nanotubes", *Cont. Math.* 447, 45 (2007).
65. A. Zarifi and **T. Garm Pedersen** "Theoretical analysis of the Faraday effect in semiconducting zigzag carbon nanotubes", *Phys. Rev. B* 77, 85409 (2008).
66. D. Yu, K. Zhu, P.K. Kristensen, **T. Garm Pedersen**, and R. Wimmer "Poly(p-phenylenevinylene) derivatives containing electron-transporting 1,10-phenanthroline segments", *Polymer Preprints* 48, 105 (2008).
67. C. Fisker and **T. Garm Pedersen** "Quantised electron states in nearly depleted hexagonal nanowires", *Nanotechnology* 19, 115704 (2008).
68. K. Pedersen, C. Fisker, and **T. Garm Pedersen** "Second-harmonic generation from ZnO nanowires", *Phys. Stat. Sol. (c)* 5, 2671 (2008).
69. **T. Garm Pedersen**, C. Flindt, J. Pedersen, N.A. Mortensen, A-P. Jauho, and K. Pedersen "Graphene antidot lattices - designed defects and spin qubits", *Phys. Rev. Lett.* 100, 136804 (2008).
70. A. Zarifi and **T. Garm Pedersen** "Linear optical and quadratic electro-optic response of carbon nanotubes: universal analytic expressions for arbitrary chirality", *J. Phys.: Condens. Matter* 20, 275211 (2008).
71. **T. Garm Pedersen**, C. Flindt, J. Pedersen, A-P. Jauho, N.A. Mortensen, and K. Pedersen "Optical properties of graphene antidot lattices", *Phys. Rev. B* 77, 245431 (2008).
72. C. Fisker and **T. Garm Pedersen** "Density functional based tight binding modelling of ZnO structures", *Phys. Stat. Sol. (b)* 246, 354 (2009).
73. **T. Garm Pedersen** and K. Pedersen, "Systematic tight-binding study of optical second harmonic generation in carbon nanotubes", *Phys. Rev. B* 79, 035422 (2009).
74. **T. Garm Pedersen**, A-P. Jauho, and K. Pedersen "Optical response and excitons in gapped graphene", *Phys. Rev. B* 79, 113406 (2009).
75. **T. Garm Pedersen**, P. Modak, K. Pedersen, N. E. Christensen, M. M. Kjeldsen, and A. Nylandsted Larsen, "*Ab initio* calculation of electronic and optical properties of metallic tin", *J. Phys.: Condens. Matter* 21, 115502 (2009).
76. T.F. Rønnow, **T. Garm Pedersen**, and H. Cornean "Stability of singlet and triplet trions in carbon nanotubes", *Phys. Lett. A* 373, 1478 (2009).
77. K. Pedersen and **T. Garm Pedersen**, "Spectroscopic second harmonic generation from Silicon on Insulator wafers", *J. Opt. Soc. Am. B* 26, 917 (2009).
78. J. A. Fürst, **T. Garm Pedersen**, M. Brandbyge, and A-P. Jauho "Density functional study of graphene antidot lattices: Roles of geometrical relaxation and spin", *Phys. Rev. B* 80, 115117 (2009).
79. J. A. Fürst, J.G. Pedersen, C. Flindt, N.A. Mortensen, M. Brandbyge, **T. Garm Pedersen**, and A-P. Jauho "Electronic structure of graphene antidot lattices", *New J. Phys.* 11, 095020 (2009).
80. R. Petersen and **T. Garm Pedersen** "Quasiparticle properties of graphene antidot lattices", *Phys. Rev. B* 80, 113404 (2009).
81. A. Zarifi and **T. Garm Pedersen** "Universal analytic expression of electric dipole matrix elements for carbon nanotubes", *Phys. Rev. B* 80, 195422 (2009).
82. **T. Garm Pedersen**, C. Fisker, and R.V.S. Jensen, "Tight-binding parameterization of  $\alpha$ -Sn quasiparticle band structure", *J. Phys. Chem. Solids* 71, 18 (2010).

83. R. Balog, B. Jørgensen, L. Nilsson, M. Andersen, E. Rienks, M. Bianchi, M. Fanetti, E. Lægsgaard, A. Baraldi, S. Lizzit, Z. Sljivancanin, F. Besenbacher, B. Hammer, **T. Garm Pedersen**, P. Hofmann, and L. Hornekær, "Band Gap Opening in Graphene Induced by Patterned Hydrogen Adsorption", *Nature Materials* 9, 315 (2010).
84. J. Jung, **T. Garm Pedersen**, T. Søndergaard, K. Pedersen, A. Nylandsted Larsen, and B. Bech Nielsen "Electrostatic plasmon resonances of metal nanospheres in layered geometries", *Phys. Rev. B.* 81, 125413 (2010).
85. S.V. Goupalov, A. Zarifi, and **T. Garm Pedersen** "Calculation of optical matrix elements in carbon nanotubes", *Phys. Rev. B.* 81, 153402 (2010).
86. T.F. Rønnow, **T. Garm Pedersen**, and H. Cornean "Correlation and dimensional effects of trions in carbon nanotubes", *Phys. Rev. B.* 81, 205446 (2010).
87. M. M. Kjeldsen, J. L. Hansen, **T. Garm Pedersen**, P. Gaiduk, and A. Nylandsted Larsen "Tuning the plasmon resonance of metallic tin nanocrystals in Si-based materials", *Appl. Phys. A.* 100, 31, (2010).
88. **T. Garm Pedersen**, "Excitons on the surface of a sphere", *Phys. Rev. B.* 81, 233406 (2010).
89. J. Jung, **T. Garm Pedersen**, T. Søndergaard, K. Pedersen, A. Nylandsted Larsen, and B. Bech Nielsen "On localized surface plasmons of metallic tin nanoparticles in silicon", *Phys. Stat. Sol. RRL* 4, 292 (2010).
90. T.F. Rønnow, **T. Garm Pedersen**, and H. Cornean "Dimensional and correlation effects of charged excitons in low-dimensional semiconductors", *J. Phys. A.* 43, 474031 (2010).
91. Y.-W. Lu, B. Julsgaard, M.C. Petersen, R.V.S. Jensen, **T. Garm Pedersen**, K. Pedersen, and A. Nylandsted Larsen, "Erbium diffusion in silicon dioxide", *Appl. Phys. Lett.* 97, 141903 (2010).
92. T. Søndergaard, J. Gadegaard, P.K. Kristensen, T. Kari Jensen, **T. Garm Pedersen**, and K. Pedersen, "Guidelines for 1D-periodic surface microstructures for antireflective lenses", *Opt. Express.* 18, 26245 (2010).
93. R. Petersen, **T. Garm Pedersen**, and A.-P. Jauho, "Clar sextet analysis of triangular, rectangular and honeycomb graphene antidot lattices", *ACS Nano* 5, 523 (2011).
94. J. Jung, T. Søndergaard, **T. Garm Pedersen**, K. Pedersen, A. Nylandsted Larsen, and B. Bech Nielsen "Dyadic Green's functions of thin films: applications within plasmonic solar cells", *Phys. Rev. B.* 83, 085419 (2011).
95. **T. Garm Pedersen**, J. Jung, T. Søndergaard, and K. Pedersen, "Nanoparticle plasmon resonances in the near-static limit", *Opt. Lett.* 36, 713 (2011).
96. R.V.S. Jensen, **T. Garm Pedersen**, and K. Pedersen "Optical properties and size/shape dependence of  $\alpha$ -Sn nanocrystals by tight binding", *Phys. Stat. Sol. C.* 8, 1002 (2011).
97. T.F. Rønnow, **T. Garm Pedersen**, B. Partoens, and K. K. Berthelsen, "Variational quantum monte carlo study of charged excitons in fractional dimensional space", *Phys. Rev. B.* 84, 035316 (2011).
98. M. H. Schultz, A.-P. Jauho, and **T. Garm Pedersen**, "Screening in graphene antidot lattices", *Phys. Rev. B.* 84, 045428 (2011).
99. T. Kari, J. Gadegaard, D. T. Jørgensen, T. Søndergaard, **T. Garm Pedersen**, and K. Pedersen, "Compact lens with circular spot profile for square die LEDs in multi-LED projectors", *Appl. Opt.* 50, 4860 (2011).
100. B. Julsgaard, Y.-W. Lu, R.V.S. Jensen, **T. Garm Pedersen**, K. Pedersen, J. Chevallier, P. Balling, and A. Nylandsted Larsen, "Er sensitization by a thin Si layer: Interaction-

- distance dependence", *Phys. Rev. B.* 84, 085403 (2011).
101. R.V.S. Jensen, **T. Garm Pedersen**, and A. Nylandsted Larsen, "Quasiparticle electronic and optical properties of the Si-Sn system", *J. Phys.: Condens. Matter* 23, 345501 (2011).
  102. B. Johansen, C. Uhrenfeldt, A. Nylandsted Larsen, **T. Garm Pedersen**, H. U. Ulriksen, P. Kjær Kristensen, J. Jung, T. Søndergaard, and K. Pedersen, "Optical transmission through two-dimensional arrays of  $\beta$ -Sn nanoparticles", *Phys. Rev. B.* 84, 113405 (2011).
  103. J. G. Pedersen and **T. Garm Pedersen**, "Tight-binding study of the magneto-optical properties of gapped graphene", *Phys. Rev. B.* 84, 115424 (2011).
  104. T. Kari, J. Gadegaard, T. Søndergaard, **T. Garm Pedersen**, and K. Pedersen, "Reliability of point source approximations in compact LED lens designs", *Opt. Express* 19, A1190 (2011).
  105. J. Jung, M.L. Trolle, K. Pedersen, and **T. Garm Pedersen**, "Indirect near-field absorption mediated by localized surface plasmons", *Phys. Rev. B.* 84, 165447 (2011).
  106. J. Jung and **T. Garm Pedersen**, "Exact polarizability and plasmon resonances of partly buried nanowires", *Opt. Express.* 19, 22775 (2011).
  107. T.F. Rønnow, **T. Garm Pedersen**, and B. Partoens, "Biexciton binding energy in fractional dimensional semiconductors", *Phys. Rev. B* 85, 045412 (2012).
  108. J. G. Pedersen and **T. Garm Pedersen**, "Dirac model of an isolated graphene antidot in a magnetic field", *Phys. Rev. B* 85, 035413 (2012).
  109. J. Jung and **T. Garm Pedersen**, "Polarizability of nanowires at surfaces: Exact solution for general geometry", *Opt. Express* 20, 3663 (2012).
  110. T.F. Rønnow, **T. Garm Pedersen**, and H. Cornean, "Optical absorption of charged excitons in semiconducting carbon nanotubes", *Physica E.* 44, 936 (2012).
  111. R. Petersen, **T. Garm Pedersen**, and A.-P. Jauho, "Clar sextets in square graphene antidot lattices", *Physica E.* 44, 967 (2012).
  112. M.L. Trolle and **T. Garm Pedersen**, "Indirect optical absorption in silicon via thin-film surface plasmon", *J. Appl. Phys.* 112, 43103 (2012).
  113. J. G. Pedersen and **T. Garm Pedersen**, "Band gaps in graphene via periodic electrostatic gating", *Phys. Rev. B* 85, 235432 (2012).
  114. C. Fisker, M.L. Trolle and **T. Garm Pedersen**, "Modelling amorphous silicon with hydrogenated defects: GW treatment of the ST12 phase", *J. Phys.: Condens. Matter* 24, 325803 (2012).
  115. J. Jung and **T. Garm Pedersen**, "Polarizability of supported metal nanoparticles: Mehler-Fock approach", *J. Appl. Phys.* 112, 64312 (2012).
  116. **T. Garm Pedersen** and J. G. Pedersen, "Transport in graphene antidot barriers and tunneling devices", *J. Appl. Phys.* 112, 113715 (2012).
  117. J. G. Pedersen, T. Gunst, T. Markussen, and **T. Garm Pedersen**, "Graphene antidot lattice waveguides", *Phys. Rev. B.* 86, 245410 (2012).
  118. J. G. Pedersen, M.H. Brynildsen, H. Cornean, and **T. Garm Pedersen**, "Optical Hall conductivity in bulk and nanostructured graphene beyond the Dirac approximation", *Phys. Rev. B.* 86, 235438 (2012).
  119. Y.-C. Tsao, T. Søndergaard, E. Skovsen, L. Gurevich, K. Pedersen, and **T. Garm Pedersen**, "Pore size dependence of diffuse light scattering from anodized aluminum solar cell backside reflectors", *Opt. Express.* 21, A84 (2013).
  120. C. Fisker and **T. Garm Pedersen**, "Optimization of imprintable nanostructured a-Si solar cells: FDTD study", *Opt. Express* 21, A208 (2013).

121. C. Uhrenfeldt, T. F. Villesen, B. Johansen, **T. Garm Pedersen**, and A. Nylandsted Larsen, "Tuning plasmon resonances for light coupling into silicon: a rule of thumb for experimental design", *Plasmonics* 8, 79 (2013).
122. J. Jung and **T. Garm Pedersen**, "Analysis of plasmonic properties of heavily doped semiconductors using full band structure calculations", *J. Appl. Phys.* 113, 114904 (2013).
123. **T. Garm Pedersen** and J. G. Pedersen, "Self-consistent tight-binding model of B- and N-doping in graphene", *Phys. Rev. B.* 87, 155433 (2013).
124. J. G. Pedersen and **T. Garm Pedersen**, "Hofstadter butterflies and magnetically induced band gap quenching in graphene antidot lattices", *Phys. Rev. B.* 87, 235404 (2013).
125. M.L. Trolle and **T. Garm Pedersen**, "Second harmonic generation in carbon nanotubes induced by transversal electrostatic field", *J. Phys.: Condens. Matter.* 25, 325301 (2013).
126. C. Uhrenfeldt, T. F. Villesen, B. Johansen, J. Jung, **T. Garm Pedersen**, and A. Nylandsted Larsen, "Diffractive coupling and plasmon-enhanced photocurrent generation in silicon", *Opt. Express.* 21, A774 (2013).
127. M.L. Trolle, U.S. Møller, and **T. Garm Pedersen**, "Large and stable band gaps in spin-polarized graphene antidot lattices", *Phys. Rev. B.* 88, 195418 (2013).
128. Y.-C. Tsao, C. Fisker, and **T. Garm Pedersen**, "Optical absorption of amorphous silicon on anodized aluminium substrates for solar cell applications", *Opt. Commun.* 315, 17 (2014).
129. Y.-C. Tsao, C. Fisker, and **T. Garm Pedersen**, "Nanoimprinted backside reflectors for *a*-Si:H thin-film solar cells: Critical role of absorber front textures", *Opt. Express.* 22, A651 (2014).
130. X. Zhu, W. Wang, W. Yan, M.B. Larsen, P. Bøggild, **T. Garm Pedersen**, S. Xiao, J. Zi, and N. A. Mortensen, "Plasmon-phonon coupling in large-area graphene dot and antidot arrays fabricated by nanosphere lithography", *Nano Lett.* 14, 2907 (2014).
131. S.J. Brun, M. Thomsen, and **T. Garm Pedersen**, "Electronic and optical properties of graphene antidot lattices: Comparison of Dirac and tight-binding models", *J. Phys.: Condens. Matter* 26, 265301 (2014).
132. M.L. Trolle, G. Seifert, and **T. Garm Pedersen**, "Theory of excitonic second harmonic generation in monolayer MoS<sub>2</sub>", *Phys. Rev. B.* 89, 235410 (2014).
133. M. Thomsen, S.J. Brun, and **T. Garm Pedersen**, "Dirac model of electronic transport in graphene antidot barriers", *J. Phys.: Condens. Matter* 26, 335301 (2014).
134. T. Søndergaard, Y.-C. Tsao, P.K. Kristensen, **T. Garm Pedersen**, and K. Pedersen, "Light-trapping in guided modes of thin-film-silicon-on-silver waveguides by scattering from a nanostrip", *J. Opt. Soc. Am. B.* 31, 2036 (2014).
135. T. Søndergaard, Y.-C. Tsao, **T. Garm Pedersen**, and K. Pedersen, "Light-trapping in thin-film solar cells: the role of guided modes", *Proc. SPIE* 9177 (2014).
136. **T. Garm Pedersen**, "Self-consistent model of edge doping in graphene", *Phys. Rev. B.* 91, 085428 (2015).
137. M. Thomsen, S.J. Brun, and **T. Garm Pedersen**, "Stability and magnetization of free-standing and graphene-embedded iron membranes", *Phys. Rev. B.* 91, 125439 (2015).
138. R. Petersen and **T. Garm Pedersen**, "Bandgap scaling in bilayer graphene antidot lattices", *J. Phys.: Condens. Matter.* 27, 225502 (2015).
139. S.J. Brun and **T. Garm Pedersen**, "Intense and tunable second-harmonic generation in

- biased bilayer graphene", *Phys. Rev. B.* 91, 205405 (2015).
140. Y.-C. Tsao, T. Søndergaard, P. K. Kristensen, R. Rizzoli, K. Pedersen, and **T. Garm Pedersen**, "Rapid fabrication and trimming of nanostructured backside reflector for thin-film amorphous silicon solar cells", *Appl. Phys. A.* 120, 417 (2015).
  141. **T. Garm Pedersen**, "Analytical models of optical response in one dimensional semiconductors", *Phys. Lett. A.* 379, 1785 (2015).
  142. S.K. Ram, R. Rizzoli, D. Desta, B.R. Jeppesen, M. Bellettato, I. Samatov, Y.-C. Tsao, P.T. Neuvonen, S.R. Johannsen, P.B. Jensen, J.L. Hansen, **T. Garm Pedersen**, R.N. Pereira, K. Pedersen, P. Balling, and A.N. Larsen, "Directly patterned TiO<sub>2</sub> nanostructures for efficient light harvesting in thin film solar cells", *J. Phys. D.* 48, 365101 (2015).
  143. M.L. Trolle and **T. Garm Pedersen**, "Excitonic lifetimes and optical response of carbon nanotubes modulated by electrostatic gating", *Phys Rev. B.* 92, 085431 (2015).
  144. H. Mera, **T. Garm Pedersen**, and B.K. Nikolic, "Nonperturbative quantum physics from low-order perturbation theory", *Phys. Rev. Lett.* 115, 143001 (2015).
  145. M.L. Trolle, Y.-C. Tsao, K. Pedersen, and **T. Garm Pedersen**, "Observation of excitonic resonances in the second harmonic spectrum of MoS<sub>2</sub>", *Phys. Rev. B.* 92, 161409(R) (2015).
  146. M. R. Thomsen, M. Ervasti, A. Harju, and **T. Garm Pedersen**, "Spin relaxation in hydrogenated graphene", *Phys. Rev. B.* 92, 195408 (2015).
  147. **T. Garm Pedersen**, "Intraband effects in excitonic second harmonic generation", *Phys. Rev. B.* 92, 235432 (2015).
  148. **T. Garm Pedersen**, H. Mera, and B.K. Nikolic, "Stark effect in low-dimensional hydrogen", *Phys. Rev. A.* 93, 013409 (2016).
  149. J. Gadegaard, T.K. Jensen, D.T. Jørgensen, P.K. Kristensen, T. Søndergaard, **T. Garm Pedersen**, and K. Pedersen, "High output LED-based light-engine for profile lighting fixtures with high color-uniformity using free-form reflectors", *Appl. Opt.* 55, 1356 (2016).
  150. S.J. Brun, V.M. Pereira, and **T. Garm Pedersen**, "Boron and nitrogen doping in graphene antidot lattices", *Phys. Rev. B.* 93, 245420 (2016).
  151. R. Petersen, **T. Garm Pedersen**, M. N. Gjerding, and K. S. Thygesen, "Limitations of effective medium theory in multilayer graphite/hBN heterostructures", *Phys. Rev. B.* 94, 035128 (2016).
  152. **T. Garm Pedersen**, S. Latini, K. S. Thygesen, H. Mera, and B.K. Nikolic, "Exciton ionization in multilayer transition-metal dichalcogenides", *New J. Phys.* 18, 073043 (2016).
  153. M. R. Thomsen, S. Power, A.-P. Jauho, and **T. Garm Pedersen**, "Magnetic edge states and magnetotransport in graphene antidot barriers", *Phys. Rev. B.* 94, 045438 (2016).
  154. F. Hipolito, **T. Garm Pedersen**, and V.M. Pereira, "Non-linear photocurrents in two-dimensional systems based on graphene and boron-nitride", *Phys. Rev. B.* 94, 045434 (2016).
  155. **T. Garm Pedersen**, "Exciton Stark shift and electroabsorption in monolayer transition-metal dichalcogenides", *Phys. Rev. B.* 94, 125424 (2016).
  156. H. Mera, **T. Garm Pedersen**, and B.K. Nikolic, "Hypergeometric resummation of self-consistent sunset diagrams for steady-state electron-boson quantum many-body systems out of equilibrium", *Phys. Rev. B.* 94, 165429 (2016).
  157. M. L. Trolle, **T. Garm Pedersen**, and V. Veniard, "Model dielectric function for 2D

- semiconductors including substrate screening", *Sci. Rep.* 7, 39844 (2017).
158. D. Dimitrovski, L. B. Madsen, and **T. Garm Pedersen**, "High-order harmonic generation from gapped graphene: perturbative response and transition to non-perturbative regime", *Phys. Rev. B.* 95, 035405 (2017).
  159. F. Bonabi and **T. Garm Pedersen**, "Linear and nonlinear Franz-Keldysh effect in one-dimensional semiconductors", *J. Phys.: Condens. Matter.* 29, 165702 (2017).
  160. **T. Garm Pedersen**, "Stark effect in finite-barrier quantum wells, wires, and dots", *New J. Phys.* 19, 043011 (2017).
  161. J. Have, H. Kovarik, **T. Garm Pedersen**, and H. D. Cornean, "On the existence of impurity bound excitons in one-dimensional systems with zero range interactions", *J. Math. Phys.* 58, 052106 (2017).
  162. **T. Garm Pedersen**, "Nonlinear optical response of relativistic energy bands: Application to phosphorene", *Phys. Rev. B.* 95, 235419 (2017).
  163. D. Dimitrovski, **T. Garm Pedersen**, and L. B. Madsen, "Floquet-Bloch shifts in two-band semiconductors interacting with light", *Phys. Rev. A.* 95, 063420 (2017).
  164. M. R. Thomsen and **T. Garm Pedersen**, "Analytical Dirac model of graphene rings, dots, and antidots in magnetic fields", *Phys. Rev. B.* 95, 235427 (2017).
  165. M. Gjerding, R. Petersen, **T. Garm Pedersen**, N. A. Mortensen, and K. S. Thygesen, "Layered van der Waals crystals with hyperbolic light dispersion", *Nature Commun.* 8, 320 (2017).
  166. S. R. Power, M. R. Thomsen, A-P. Jauho, and **T. Garm Pedersen**, "Electron trajectories and magnetotransport in nanopatterned graphene under commensurability conditions", *Phys. Rev. B.* 96, 075425 (2017).
  167. **T. Garm Pedersen**, "Stark effect and polarizability of graphene quantum dots", *Phys. Rev. B.* 96, 115 432 (2017).
  168. F. Bonabi, S. J. Brun, and **T. Garm Pedersen**, "Excitonic optical response of carbon chains confined in single-walled carbon nanotubes", *Phys. Rev. B.* 96, 155419 (2017).
  169. A. Taghizadeh, F. Hipolito, and **T. Garm Pedersen**, "Linear and nonlinear optical response of crystals using length and velocity gauges: Effect of basis truncation", *Phys. Rev. B.* 96, 195413 (2017).
  170. R. Petersen, **T. Garm Pedersen**, and F. Javier García de Abajo, "Nonlocal plasmonic response of doped and optically pumped graphene, MoS<sub>2</sub>, and black phosphorus", *Phys. Rev. B.* 96, 205430 (2017).
  171. E. J. H. Skjølstrup, T. Søndergaard, K. Pedersen, and **T. Garm Pedersen**, "Optics of multiple grooves in metal: transition from high scattering to strong absorption", *J. Nanophoton.* 11, 046023 (2017).
  172. F. Hipolito and **T. Garm Pedersen**, "Optical third harmonic generation in black phosphorus", *Phys. Rev. B.* 97, 035431 (2018).
  173. **T. Garm Pedersen**, "Sum rules for zeros and intersections of Bessel functions from quantum mechanical perturbation theory", *Phys. Lett. A.* 382, 1837 (2018).
  174. J. Have and **T. Garm Pedersen**, "Magneto-excitons and Faraday rotation in single-walled carbon nanotubes and graphene nanoribbons", *Phys. Rev. B.* 97, 115405 (2018).
  175. E. J. H. Skjølstrup, T. Søndergaard, and **T. Garm Pedersen**, "Quantum spill-out in few-nanometer metal gaps: Effect on gap plasmons and reflectance from ultrasharp groove arrays", *Phys. Rev. B.* 97, 115429 (2018).
  176. M. Massicotte, F. Violla, P. Schmidt, M. Lundeberg, S. Latini, S. Haastруп, M.



- Danovich, D. Davydovskaya, K. Watanabe, T. Taniguchi, V. Fal'ko, K. Thygesen, **T. Garm Pedersen**, and F. H. L. Koppens, "Dissociation of two-dimensional excitons in monolayer WSe<sub>2</sub>", *Nature Commun.* 9, 1633 (2018).
177. A. Taghizadeh and **T. Garm Pedersen**, "Gauge invariance of excitonic linear and nonlinear optical response", *Phys. Rev. B.* 97, 205432 (2018).
178. H. Mera, **T. Garm Pedersen**, and B.K. Nikolic, "Fast summation of divergent series and resurgent transseries in quantum field theories from Meijer-G approximants", *Phys. Rev. D.* 97, 105027 (2018).
179. **T. Garm Pedersen**, "Linear and nonlinear optical and spin-optical response of gapped and proximitized graphene", *Phys. Rev. B.* 98, 165425 (2018).
180. F. Hipolito, A. Taghizadeh, and **T. Garm Pedersen**, "Nonlinear optical response of doped mono- and bilayer graphene: Length gauge tight-binding model", *Phys. Rev. B.* 98, 205420 (2018).
181. F. Bonabi and **T. Garm Pedersen**, "Franz-Keldysh effect and electric field-induced second harmonic generation in graphene: From one-dimensional nanoribbons to two-dimensional sheet", *Phys. Rev. B.* 99, 045413 (2019).
182. J. Have, G. Catarina, **T. Garm Pedersen**, and N. M. R. Peres, "Monolayer transition metal dichalcogenides in strong magnetic fields: Validating the Wannier model using a microscopic calculation", *Phys. Rev. B.* 99, 035416 (2019).
183. B. S. Jessen, L. Gammelgaard, M. R. Thomsen, D. M. A. Mackenzie, J. D. Thomsen, J. M. Caridad, E. Duegaard, K. Watanabe, T. Taniguchi, T. J. Booth, **T. Garm Pedersen**, A.-P. Jauho, and P. Bøggild, "Lithographic band structure engineering of graphene", *Nature Nanotech.* 14, 340 (2019).
184. **T. Garm Pedersen**, "Yukawa model of screening in low-dimensional excitons: Diagonalization, perturbation, variation, and resummation analysis", *J. Phys.: Commun.* 3, 035021 (2019).
185. F. Vialla, M. Danovich, D. Ruiz-Tijerina, M. Massicotte, P. Schmidt, T. Taniguchi, K. Watanabe, R. J. Hunt, M. Szyniszewski, N. Drummond, **T. Garm Pedersen**, V. Fal'ko, and F. Koppens, "Tuning of impurity-bound interlayer complexes in a van der Waals heterobilayer", *2D Mater.* 6, 035032 (2019).
186. E. J. H. Skjølstrup, T. Søndergaard, and **T. Garm Pedersen**, "Quantum spill-out in nanometer-thin gold slabs: Effect on the plasmon mode index and the plasmonic absorption", *Phys. Rev. B.* 99, 155427 (2019).
187. F. Hipolito, D. Dimitrovski, and **T. Garm Pedersen**, "Iterative approach to arbitrary nonlinear optical response functions of graphene", *Phys. Rev. B.* 99, 195407 (2019).
188. H. U. Ulriksen, T. Søndergaard, **T. Garm Pedersen**, and K. Pedersen, "Plasmon enhanced light scattering into semiconductors by aperiodic metal nanowire arrays", *Opt. Express.* 27, 14308 (2019).
189. **T. Garm Pedersen**, "Stark effect in spherical quantum dots", *Phys. Rev. A.* 99, 063410 (2019).
190. A. Taghizadeh and **T. Garm Pedersen**, "Nonlinear optical selection rules of excitons in monolayer transition metal dichalcogenides", *Phys. Rev. B.* 99, 235433 (2019).
191. J. Have, N. M. R. Peres, and **T. Garm Pedersen**, "Excitonic magneto-optics in monolayer transition metal dichalcogenides: From nanoribbons to two-dimensional response", *Phys. Rev. B.* 100, 045411, (2019).
192. H. C. Kamban and **T. Garm Pedersen**, "Field-induced dissociation of two-dimensional

- excitons in transition metal dichalcogenides", *Phys. Rev. B.* 100, 045307, (2019).
193. **T. Garm Pedersen**, "Giant Stark effect in coupled quantum wells: Analytical model", *Phys. Rev. B.* 100, 155410 (2019).
  194. A. Taghizadeh and **T. Garm Pedersen**, "Plasmons in ultra-thin gold slabs with quantum spill-out: Fourier modal method, perturbative approach, and analytical model", *Opt. Express.* 27, 36941 (2019).
  195. A. Taghizadeh and **T. Garm Pedersen**, "Nonlinear excitonic spin Hall effect in monolayer transition metal dichalcogenides", *2D Mater.* 7, 015003 (2020).
  196. H. C. Kamban, S. S. Christensen, T. Søndergaard, and **T. Garm Pedersen**, "Finite-difference time-domain simulation of strong-field ionization: A perfectly matched layer approach", *Phys. Stat. Sol. B* 257, 1900467 (2020).
  197. H. C. Kamban and **T. Garm Pedersen**, "Interlayer excitons in van der Waals heterostructures: Binding energy, Stark shift, and field-induced dissociation", *Sci. Rep.* 10, 5537 (2020).
  198. A. Rodríguez Echarri, E. J. H. Skjølstrup, **T. Garm Pedersen**, and F. Javier García de Abajo, "Theory of EELS in atomically thin metallic films", *Phys. Rev. Res.* 2, 023096 (2020).
  199. **T. Garm Pedersen**, "Hypergeometric resummation approach to dissociation and Stark effect in non-rigid dipolar molecules", *J. Phys. B: At. Mol. Phys.* 53, 175101 (2020).
  200. A. Taghizadeh, U. Leffers, **T. Garm Pedersen**, and K. S. Thygesen, "A library of *ab initio* Raman spectra for automated identification of 2D materials", *Nature Commun.* 11, 3011 (2020).
  201. **T. Garm Pedersen**, "Graphene fractals: Energy gap and spin polarization", *Phys. Rev. B.* 101, 235427 (2020).
  202. J. C. G. Henriques, H. C. Kamban, **T. Garm Pedersen**, and N. M. R. Peres, "Analytical quantitative semi-classical approach to the LoSurdo-Stark effect and ionization in 2D excitons", *Phys. Rev. B.* 102, 035402 (2020).
  203. **T. Garm Pedersen**, "Magnetoplasmon resonances in nanoparticles", *Phys. Rev. B.* 102, 075410 (2020).
  204. H. C. Kamban, N. M. R. Peres, and **T. Garm Pedersen**, "Anisotropic Stark shift, field-induced dissociation, and electroabsorption of excitons in phosphorene", *Phys. Rev. B.* 102, 115305 (2020).
  205. H. Cornean, H. Kovarik, and **T. Garm Pedersen**, "Impurity-bound excitons in one and two dimensions", *J. Spectr. Theor.* 10, 1103 (2020).
  206. J. C. G. Henriques, **T. Garm Pedersen**, and N. M. R. Peres, "Ionisation rate and Stark shift of a one-dimensional model of the Hydrogen molecular ion" *Eur. J. Phys.* 42, 025403 (2021).
  207. **T. Garm Pedersen**, "Plasmons and magnetoplasmon resonances in nanorings", *Phys. Rev. B.* 103, 085419 (2021).
  208. A. Taghizadeh, K. S. Thygesen and **T. Garm Pedersen**, "Two-dimensional materials with giant optical nonlinearities near the theoretical upper limit", *ACS Nano* 15, 7155 (2021).
  209. M. O. Sauer, C. E. M. Nielsen, L. Merring-Mikkelsen, and **T. Garm Pedersen**, "Optical emission from light-like and particle-like excitons in monolayer transition metal dichalcogenides", *Phys. Rev. B.* 103, 205404 (2021).
  210. M. N. Gjerding, A. Taghizadeh, A. Rasmussen, S. Ali, F. Bertoldo, T. Deilmann, U. P.

- Holguin, N. R. Knøsgaard, M. Kruse, A. H. Larsen, S. Manti, **T. Garm Pedersen**, T. Skovhus, M. K. Svendsen, J. J. Mortensen, T. Olsen and K. S. Thygesen, "Recent progress of the computational 2D materials database (C2DB)", *2D Mater.* 8, 044002 (2021).
211. J. C. G. Henriques, H. C. Kamban, **T. Garm Pedersen**, and N. M. R. Peres, "Calculation of the nonlinear response functions of intra-exciton transitions in two-dimensional transition metal dichalcogenides", *Phys. Rev. B.* 103, 235412 (2021).
212. **T. Garm Pedersen** and A. Taghizadeh, "Excitonic two-photon absorption in monolayer transition-metal dichalcogenides: Impact of screening and trigonal warping", *Phys. Rev. B.* 104, 085431 (2021).
213. **T. Garm Pedersen**, "Dynamic polarizability of low-dimensional excitons", *Phys. Rev. B.* 104, 155414 (2021).
214. H. C. Kamban and **T. Garm Pedersen**, "Efficient ionization of two-dimensional excitons by intense single-cycle terahertz pulses", *Phys. Rev. B.* 104, 235305 (2021).
215. **T. Garm Pedersen**, "An exact and compact formula for the optical intersubband response of finite-barrier quantum wells, wires and dots", *Phys. Lett. A.* 423, 127821 (2022).
216. M. O. Sauer and **T. Garm Pedersen**, "Exciton absorption, band structure, and optical emission in biased bilayer graphene", *Phys. Rev. B.* 105, 115416 (2022).
217. H. Cornean, D. Krejcirik, **T. Garm Pedersen**, N. Raymond, and E. Stockmeyer, "On the two-dimensional quantum confined Stark effect in strong electric fields", *SIAM J. Math. Anal.* 54, 2114 (2022).
218. **T. Garm Pedersen** and H. Cornean, "Enhanced Stark effect in Dirac materials", *J. Phys.: Condens. Matter.* 34, 435301 (2022).
219. **T. Garm Pedersen**, H. Cornean, D. Krejcirik, N. Raymond, and E. Stockmeyer, "Stark-localization as a probe of nanostructure geometry", *New J. Phys.* 24, 093005 (2022).
220. A. J. H. Jones, L. Gammelgaard, M. O. Sauer, D. Biswas, R. J. Koch, C. Jozwiak, E. Rotenberg, A. Bostwick, K. Watanabe, T. Taniguchi, C. R. Dean, A.-P. Jauho, P. Bøggild, **T. Garm Pedersen**, B. S. Jessen, S. Ulstrup, "Nanoscale view of engineered massive Dirac quasiparticles in lithographic graphene superstructures", *ACS Nano* 16, 19354 (2022).
221. **T. Garm Pedersen**, "Coulomb-Zeeman-Stark problem in two dimensions", *Phys. Rev. A.* 107, 022804 (2023).
222. M. O. Sauer, A. Taghizadeh, U. Petralanda, M. Ovesen, K. S. Thygesen, T. Olsen, H. Cornean, and **T. Garm Pedersen**, "Shift current photovoltaic efficiency of 2D materials", *npj Comput. Mat.* 9, 35 (2023).
223. **T. Garm Pedersen**, "Zeeman-Stark problem in a two-dimensional disk", *Phys. Rev. A.* 107, 052207 (2023).
224. **T. Garm Pedersen**, "Stark effect in nonhydrogenic low-dimensional excitons", *Phys. Rev. B.* 107, 195419 (2023).
225. M. F. C. M. Quintela and **T. Garm Pedersen**, "Anisotropic linear and non-linear excitonic optical properties of buckled monolayer semiconductors", *Phys. Rev. B.* 107, 235416 (2023).
226. **T. Garm Pedersen**, "Dynamic and static dipole polarizability of an Aharonov-Bohm ring", *Eur. J. Phys. Plus.* 139, 486 (2024).
227. **T. Garm Pedersen** and B. L. Burrows, "Frequency dependent polarizability of confined harmonic oscillators", *Phys. Scr.* 99, 075609 (2024).

228. M. F. C. M. Quintela, N. M. R. Peres and **T. Garm Pedersen**, "Tunable nonlinear excitonic optical response in biased bilayer graphene", Phys. Rev. B. 110, 085433 (2024)
229. **T. Garm Pedersen**, "Dipole Polarizability of Relativistic Aharonov-Bohm Ring: Application to Graphene Nanorings", Phys. Rev. B. 110, 115426 (2024).
230. **T. Garm Pedersen**, "Linear and nonlinear polarizabilities of anharmonic oscillators from hypergeometric resummation", Submitted.

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