

## CURRICULUM VITAE

# Simen Ådnøy Ellingsen

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## Personal details

Name: Simen Andreas Ådnøy Ellingsen  
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## Education

- ▶ **2007 - 2011:** Ph.D., Dept. of Energy and Process Engineering, Norwegian University of Science and Technology (NTNU), Trondheim NO.
  - Thesis «Dispersion forces in Micromechanics» defended March 2011.
  - Supervisor Prof. Iver H. Brevik.
  - Opponents: Prof. Bo Sernelius and Prof. Finn Ravndal
- ▶ **2006 - 2009:** Ph.D., Department of War Studies, King's College London, UK.
  - Thesis «Nuclear Terrorism and Rational Choice» defended July 2009.
  - Supervisor Prof. Peter D. Zimmerman.
  - Examiners: Dr. Charles D. Ferguson, Dr. Graham Spinardi
  - Studies financed by MacArthur scholarship.
- ▶ **2001 - 2006:** Master of Science and Technology (M.Sc./Siv.ing.) of Technical Physics, Dept. of Physics, NTNU, Trondheim NO.
  - Thesis «Casimir Effect in Plane Parallel geometry»
  - Supervisor Prof. Iver H. Brevik.
  - Highest grade A achieved in 29 out of 33 exams.
- ▶ **1997 - 2000:** Tranberg Upper Secondary School, Gjøvik, NO. School's best average grade of 2000: 5.89 (Highest grade 6 obtained in 24 out of 27 subjects).

## Positions: academic and teaching (selected)

- ▶ 2019 – present: Professor, Department of Energy and Process Engineering (EPT), NTNU
- ▶ **2014 - 2019:** Associate Professor, EPT [Paternity leave June through December 2014]
- ▶ **2011-2014:** Postdoctoral researcher, EPT, NTNU
- ▶ **Spring terms 2006, 2008, 2009, 2010, 2011:** Scientific Assistant of Teaching, Fluid Mechanics course, Department of Energy and Process Engineering. Includes marking of exams. The course has approximately 650 students each spring term.

## Honours

- ▶ Member of **the Young Academy of Norway** (Akademiet for Yngre Forskere) 2019 – 2023.
- ▶ **Outstanding Academic Fellow** of NTNU, 2017-2021. A programme for research career development of especially promising young academics.

- ▶ The **Royal Norwegian Society of Sciences and Letters' annual award to outstanding young researchers** in Norway for 2011, financed by I.K. Lykke's Fund. Two prizes are awarded annually, one for sciences, one for humanities.
- ▶ The **Exxon Mobil prize** for outstanding PhD thesis, 2011, category for basic research. Two prizes given annually to NTNU promovendi: basic and applied research.
- ▶ **Best Junior Paper Award**, QFEXT'09, Norman, Oklahoma US, September 2009, Shared with Dr J. Munday of Harvard University. The bi-annual QFEXT conferences are the foremost meeting place for the Casimir effect research community.

## **Fellowships, scholarships and grants**

- ▶ **2016:** Research Council of Norway, programme FRINATEK, category "Young Research Talents", grant of 7 MNOK.
- ▶ **2011-2014:** Postdoctoral fellowship, Energy and Process Engineering, NTNU
- ▶ **2007-2011:** Ph.D. fellowship, IVT faculty, NTNU.
- ▶ **2006-2009:** Ph.D. scholarship from the MacArthur foundation.
- ▶ **Grants:** European Science Foundation, grant for academic visit within the activity CASIMIR. Two grants obtained, in 2009 and 2010, respectively.
- ▶ **IVT faculty, NTNU, strategic funds:** 1 funded PhD student starting autumn 2014.

## **Positions: other (selected)**

- ▶ **Summers of 2005 and 2006:** Research Intern, the Norwegian Defence Research Establishment, Kjeller NO. Modelling and Simulation of radar systems.
- ▶ **Summer of 2005:** Intern for five weeks at the International Atomic Energy Agency (IAEA), Vienna AU, Physics department. IAEA were Nobel Peace Prize laureates for 2005 and decided summer interns would also be credited for the prize.

## **Citations and h-index**

- ▶ According to *ISI Web of Science* May 13<sup>th</sup> 2020:
  - 813 **citations**,
  - 10.7 per publication (Citation data for 79 publications).
  - **h-index: 15**.

## **Teaching and supervision (at NTNU)**

- ▶ *Teaching:* Introductory course: "Fluid Mechanics" (TEP4100) spring terms 2013 - 2018, 2020. Organiser of full course, ~600 4<sup>th</sup> term students. Lectures for ≈200 students.
- ▶ *Teaching:* Completely developed and lectured PhD level course "Advanced Fluid Mechanics" autumn 2013, 2015-2017, 2019.
- ▶ *Teaching:* Advanced subject "Viscous flow and boundary layers" (TEP4156), 8 lecture hours each autumn term 2011, 2012 and 2013.
- ▶ *Main supervisor* of Dr Li Yan, graduated 2018. [Currently postdoc at University of Oxford](#).
- ▶ *Main supervisor* currently for 3 PhD students, and Benjamin Smeltzer, Peter Maxwell, Stefan Weichert.
- *Main supervisor* for 10 completed masters projects, and plus 3 current ones:
  - A. T. Klungerbo 2012/13. Project: "Droplet flow control for precise distribution of pesticide in row cultures".
  - O. A. Frøynes 2013/14. Project: "Laser deformation of fluid droplets: simulation study of nonlinear effects".
  - P. Bossum 2013/14. Project: "Laser deformation of fluid droplets with different laser beams".

- T. Berg 2015/16. Project: "Experimental investigation of wave-current interactions in a shallow flow".
- E. Aesøy 2017/18. Project: "Experimental study of surface waves on strongly sheared currents".
- Ø. Kvamme 2017/18. Project: "Numerical study of surface waves on a shear current"
- E. Aalvik 2018/19. Project: "Numerical implementation of the pressure-patch model of ships on flows of arbitrary shear profiles"
- S. I. Ludvigsen 2018/19. Project: "Numerical study of curved-mesh tailoring of free-surface shear profile."

## Other

- ▶ The European Youth Parliament (EYP):
  - represented Norway at 7 international EYP Sessions: Weimar (DE) 1999 (delegate), Bern (CH) 2000 (delegate), Stockholm (S) 2001 (session journalist), Dubrovnik (HR) 2001 (chairperson), Turin (IT) 2002 (chairperson), Durham (UK) 2004 (chairperson), Stavanger (N) 2005 (organiser). See [www.eyp.org](http://www.eyp.org) and [www.eyp.no](http://www.eyp.no) for further info.
  - Co-founder (2002) and first head of the [EYP Norway Alumni Association](http://www.eyp.no) which has organised annual national sessions of EYP in Norway since 2004. See [www.eyp.no](http://www.eyp.no).
  - President of National Session of EYP in Trondheim 2005.

## Refereeing

- ▶ Served as referee for *Physical Review Letters* (8 times), *JFM Rapids*, *Journal of Fluid Mechanics*, *Physical Review Fluids*, *Physics of Fluids*, *Ocean Modelling*, *Ocean Engineering*, *Water Waves*, *Eur. J. Mech. B/Fluids*, *Proc. R. Soc. London A*, *Physical Review A, D and E*, *Annals of Physics (N.Y.)*, *Optics Express*, *Journal of Physics A*, *Classical and Quantum Gravity*, *International Journal of Heat and Fluid Flow*, *the Journal of Marine Science and Engineering*, and *Progress in Electromagnetic Research (PIER)*.

## Academic visits (week or longer)

- ▶ University of Oklahoma (Professor Kimball Milton's group), Norman, Oklahoma, 1 month, March 2008.
- ▶ Imperial College London (Dr. Stefan Scheel's group), 31.10-8.11 2008; 12.5-22.5 2009; 17.1-28.1 2010; 20.10-29.10 2010; 11.7-20.7 2011 + 3 shorter visits.
- ▶ Potsdam University, Germany (Dr. Carsten Henkel's group), 11.1-17.1 2009.
- ▶ Université Pierre et Marie Curie, Paris, France (Dr. Astrid Lambrecht & Dr. Serge Reynaud), 8.2-13.2 2010.

## Community, other

- ▶ PhD thesis and viva examiner, University of Edinburgh, summer 2019.
- ▶ Four times administrator of PhD evaluation committee, 2018 – 2019.

## Commissions of Trust (selected)

- ▶ Advisory board of Norges Tekniske Høgskoles Fond. 2017 – . Head of committee 2019-present.
- ▶ Advisory committee for the development of the common introductory mathematics syllabus (ACT!) for the Master of Engineering education, NTNU, taken by approx. 1400 students each year.
- ▶ Advisory committee for the project to increase presence of numerical computation for the Master of Engineering education, NTNU, taken by approx. 1400 students each year.

- ▶ Topic co-organiser of session “Wave Mechanics and Wave Effects”, OMAE (Ocean, Offshore & Arctic engineering) conferences 2017, 2018 & 2019 (>1000 participants).

## Public Outreach

- ▶ Popular article on first observations of skew ship waves, *Gemini*, August 2019
- ▶ Popular article on extension of Kelvin’s theory of ship waves, published in *inter alia* *Gemini*, *Teknisk Ukeblad*, *forskning.no*, *videnskab.dk*. May/June 2014
- ▶ 3-page interview, “*Vannmagasinet*” spring 2018
- ▶ Talk on the Casimir effect, to be given at *Kunnskapsbyen*, Trondheim, April 6 2011. *Kunnskapsbyen* is an arena for researchers to interact with the general public, a collaboration between NTNU and the Norwegian Royal Society of Sciences and Letters.
- ▶ Radio interview on Casimir forces for Norwegian national radio NRK P2, “*Verd å Vite*” popular science programme, aired October 26<sup>th</sup> 2010.
- ▶ Two-page feature article on the Casimir effect and my doctoral research for popular science magazine *Gemini*, distributed to Norwegian higher educational institutions and industry, approx. 100.000 copies.

## Research areas

Physics: fluid mechanics

- ▶ Microfluidics, optofluidics
- ▶ Fluid dynamics, turbulence, surface waves, wave-current interactions.
- ▶ Physics: quantum electrodynamics and optics
- ▶ Casimir and Casimir-Polder forces

## Talks and Presentations (selected)

Invited talks:

- ▶ “3D wave phenomena on currents with arbitrary vertical shear”, *B’Waves: A workshop focussed on wave breaking in oceanic and coastal waters*, Bergen, Norway, June 2016
- ▶ “Waves on arbitrary shear currents”, *Surface waves in the ocean: a conference in honor of Kristian Dysthe’s 80th birthday*, Bergen, Norway, November/December 2017.
- ▶ Recent invited seminars: Dept of Physics (NTNU) “Fredagskollokviet” (2020); Helmholtz Zentrum Geesthacht, DE (2019), University of Oxford (2019), Meteorological institute, Oslo (2018), University of Twente, NL (2017).

Conferences (selected):

- ▶ “Experimental observation of surface wave patterns modified by sub-surface shear currents” *EGU General Assembly*, April 2019
- ▶ “First observations of wave patterns affected by sub-surface shear currents” *Gemeinschaft für Angewandte Mathematik und Mechanik 90<sup>th</sup> anniversary conference*, Vienna, February 2019
- ▶ “Experimental observation of surface wave patterns modified by sub-surface shear currents” *EGU General Assembly*, April 2019
- ▶ “Experimental observation of surface wave patterns modified by sub-surface shear currents” *Annual meeting of the APS Division of Fluid Mechanics*, Atlanta, USA, November 2018.
- ▶ “Dispersion relation for waves on arbitrary shear currents: New numerical method” *Annual meeting of the APS Division of Fluid Mechanics*, Denver CO, USA, November 2017.

- ▶ "Wave resistance for ships in vertically sheared currents" *OMAE 2017*, Trondheim Norway, June 2017
- ▶ "Dispersion relations with arbitrary shear currents" *EGU General Assembly*, Vienna, AU, April 2017.
- ▶ "Waves on a shear current" *International Workshop on Water Waves and Floating Bodies*, Bristol, UK, April 2015.
- ▶ "Optical pulling of fluid droplets" *Photon 12*, Institute of Physics conference, University of Durham, Durham, UK, September 5, 2012.
- ▶ "Casimir-Polder forces out of thermal equilibrium" *Fluctuation-Induced Forces in Condensed Matter*, Max Planck Institute for the Physics of Complex Systems, Dresden, Germany, October 15, 2010.
- ▶ "Molecular guiding with thermal Casimir-Polder forces?" *QFEXT09*, University of Oklahoma, Norman, OK, USA, September 23, 2009
- ▶ "Temperature corrections to the Casimir-Lifshitz force: poor conductors" *60 Years of Casimir Effect*, Brasilia, Brazil, June 23, 2008
- ▶ "Frequency spectrum of the Casimir force: analysis and a paradox" *60 Years of Casimir Effect*, Brasilia, Brazil, June 23, 2008

## List of publications

Simen Ådnøy Ellingsen (S.Å.E., formerly S.A.E)

### Technical Publications: journal articles (including submitted)

#### FLUID MECHANICS and OPTOFLUIDICS

1. A.H. Akselsen, S.Å.E., «Lanmuir-type vortices in boundary layers driven by a criss-cross wavy wall topography" Submitted to *J. Fluid Mech.* [arXiv:2005.00317](https://arxiv.org/abs/2005.00317).
2. P. Maxwell, S.Å.E. "Path-following methods for calculating linear surface wave dispersion relations on vertical shear flows" *Water Waves* (accepted, 2020) [arXiv:1905.03187](https://arxiv.org/abs/1905.03187).
3. P. Maxwell, B.K. Smeltzer, S.Å.E. "The error in predicted phase velocity of surface waves atop a shear current with uncertainty" *Water Waves*, **2** 79-112 (2020).
4. B.K. Smeltzer, E. Æsøy, A. Ådnøy, S.Å.E. "An improved method for determining near-surface currents from wave dispersion measurements" *Journal of Geophysical Research: Oceans* **124** 8832-8851 (2019).
5. B.K. Smeltzer, E. Æsøy, S.Å.E. "Observation of surface wave patterns modified by sub-surface shear currents" *Journal of Fluid Mechanics* **873** 508-530 (2019)
6. Y. Li, S.Å.E. "A framework for modeling linear surface waves on shear currents in slowly varying waters" *J. Geophys. Res.: Oceans* **124** 2527-2545 (2019).
7. A.H. Akselsen, S.Å.E., «Sheared free-surface flow over three-dimensional obstructions of finite amplitude" *Journal of Fluid Mechanics* **878** 740-767 (2019).
8. A.H. Akselsen, S.Å.E. «Weakly non-linear transient waves on a shear current: Ring waves and skewed Langmuir rolls" *J. Fluid Mech.* **863** 114-149 (2019).
9. Y. Li, B.K. Smeltzer, S.Å.E. "Transient wave resistance upon a real shear current" *Eur. J. Mech. B/Fluids* **73** 180-192 (2019) (published online August 2017).
10. S.Å.E., Y. Li "Approximate dispersion relations for waves on an arbitrary shear flows" *Journal of Geophysical Research: Oceans* **122** 9889-9905 (2017).
11. B.K. Smeltzer, S.Å.E. "Surface waves on currents with arbitrary vertical shear" *Physics of Fluids* **29** 047102 (2017).

12. Y. Li, S.Å.E. "Multiple resonances of a moving, oscillating surface disturbance on a shear current" *Journal of Fluid Mechanics* **808** 668-689 (2016).
13. S.Å.E., P.A. Tyvand "Oscillating line source in a shear flow with a free surface: critical layer contributions" *Journal of Fluid Mechanics* **798** 201-231 (2016).
14. S.Å.E., P.A. Tyvand "Waves from an oscillating point source with a free surface in the presence of a shear current" *Journal of Fluid Mechanics* **798** 232-255 (2016).
15. Y. Li, S.Å.E. "Ship waves on uniform shear current at finite depth: wave resistance and critical velocity" *Journal of Fluid Mechanics* **791** 539-567 (2016). On the cover of JFM v.791.
16. S.Å.E. "Oblique waves on a vertically sheared current are rotational" *European Journal of Mechanics B/Fluids* **56** 156 (2016).
17. S.Å.E. "Initial surface disturbance on a shear current: the Cauchy-Poisson problem with a twist" *Physics of Fluids* **26** 082104 (2014).
18. S.Å.E. "Ship waves in the presence of uniform vorticity" *Journal of Fluid Mechanics (JFM Rapids)* **742** R2 (2014). On the cover of JFM v.742.
19. S.Å.E. and P.-Å. Krogstad "Nonextensive statistical dynamics applied to wall turbulence" *Transactions of the Royal Norwegian Society of Sciences and Letters* **2014(3)** 40 (2014). [ArXiv: 1402.2150](https://arxiv.org/abs/1402.2150).
20. S.Å.E. and I. Brevik "How linear surface waves are affected by a current with constant vorticity" *European Journal of Physics* **35** 025005 (2014).
21. S.Å.E. "Theory of microdroplet and microbubble deformation by a Gaussian laser beam" *Journal of the Optical Society of America B* **30** 1694 (2013).
22. N. S. Aanensen, S.Å.E., and I. Brevik "Theoretical considerations of laser induced liquid-liquid interface deformation" *Physica Scripta* **87** 055402 (2013).
23. S.Å.E., and H.I. Andersson "Mixing layer between two co-current Taylor-Couette flows" *European Journal of Mechanics B/Fluids* **37** 23 (2013).
24. S.Å.E. and I. Brevik "Static and dynamic response of a fluid-fluid interface to electric point and line charge" *Annals of Physics* **327** 2899 (2012).
25. S.Å.E. and I. Brevik "Electrostrictive counter-force on fluid microdroplet in short laser pulse" *Optics Letters* **37** 1928 (2012).
26. V.D. Narasimhamurthy, S.Å.E., and H.I. Andersson, "Bilateral shear layer between two parallel Couette flows" *Physical Review E* **85** 036302 (2012).
27. S.Å.E. "Microdroplet oscillations during optical pulling" *Physics of Fluids* **24** 022002 (2012).
28. S.Å.E. and I. Brevik "Electrostrictive fluid pressure from a laser beam" *Physics of Fluids* **23** 096101 (2011).
29. S.Å.E., K.S. Gjerden, M. Grøva, and A. Hansen "Model for density waves in gravity-driven granular flow in narrow pipes", *Physical Review E* **81** 061302 (2010).
- CASIMIR AND CASIMIR POLDER FORCES**
30. K.A. Milton, E. K. Abalo, P. Parashar, N. Pourtolami, I. Brevik, S.Å.E., S.Y. Buhmann, S. Scheel "Three-body effects in Casimir-Polder repulsion" *Physical Review A* **91** 042510 (2015).
31. M. Boström, S.Å.E., I. Brevik, M. Dou, C. Persson, B. E. Sernelius "Casimir attractive-repulsive transition in MEMS" *European Physical Journal B* **85** 377 (2012).
32. M. Boström, S.Å.E., I. Brevik, D. F. Parsons, B. E. Sernelius "Sign of the Casimir-Polder





interaction between atoms and oil-water interfaces: Subtle dependence on dielectric properties" *Physical Review A* **85** 064501 (2012).

33. S.Y. Buhmann, S. Scheel, S.Å.E., K. Hornberger, and A. Jacob "Casimir-Polder interaction of fullerene molecules with surfaces" *Physical Review A* **85** 042513 (2012).
34. S.Å.E., S. Y. Buhmann, and S. Scheel "Casimir-Polder energy level shifts of an out-of-equilibrium particle near a microsphere" *Physical Review A* **85** 022503 (2012).
35. S.Å.E., S. Y. Buhmann, and S. Scheel "Temperature-independent Casimir-Polder forces in arbitrary geometries", *Physical Review A (Rapid Communications)* **84** 060501(R) (2011).
36. K.A. Milton, E.K. Abalo, P. Parashar, N. Pourtolami, I. Brevik, and S.Å.E. "Casimir-Polder repulsion near edges: wedge apex and a screen with an aperture" *Physical Review A* **83** 062507 (2011).
37. S.Å.E., S. Y. Buhmann, and S. Scheel "Casimir-Polder potential and transition rate in resonating cylindrical cavities", *Physical Review A* **82** 032516 (2010).
38. F. Intravaia, S.Å.E., and C. Henkel "Casimir-Foucault interaction: Free energy and entropy at low temperature" *Physical Review A* **82** 032504 (2010).
39. J.A. Crosse, S.Å.E., C. Klements, S.Y. Buhmann, and S. Scheel "Thermal Casimir-Polder shifts in Rydberg atoms near metallic surfaces" *Physical Review A (Rapid Communications)*, **82** 010901(R) (2010); Erratum *ibid.* **82** 029902(E) (2010).
40. S.Å.E., S.Y. Buhmann, S. Scheel "Temperature-independent Casimir-Polder forces despite large thermal photon numbers", *Physical Review Letters* **104** 223003 (2010).
41. S.Å.E., I. Brevik, and K.A. Milton "Casimir effect at nonzero temperature for wedges and cylinders", *Physical Review D* **81** 065031 (2010).
42. I. Brevik and S.Å.E. "Transverse radiation force in a tailored optical fiber", *Physical Review A (Rapid Communications)* **81** 011806(R) (2010).
43. S.Å.E., I. Brevik, and K. A. Milton "Electromagnetic Casimir Effect in a Medium-Filled Wedge II " *Physical Review E* **80** 021125 (2009).
44. S.Å.E., S. Y. Buhmann, and S. Scheel "Enhancement of thermal Casimir-Polder potentials of ground-state polar molecules in a planar cavity ", *Physical Review A* **80** 022901 (2009).
45. S.Å.E., S.Y. Buhmann, and S. Scheel "Dynamics of thermal Casimir-Polder forces on polar molecules " *Physical Review A* **79** 052903 (2009).
46. I. Brevik, S.Å.E., and K.A. Milton "Electromagnetic Casimir Effect in a Medium-Filled Wedge", *Physical Review E* **79** 041120 (2009).
47. I. Brevik and S.A.E. "Comment on «Casimir Force Acting on Magnetodielectric Bodies Embedded in Media»", *Physical Review A* **79** 027801 (2009).
48. S.A.E. "Nernst's heat theorem for Casimir-Lifshitz free energy", *Physical Review E* **78** 021120 (2008).
49. S.A.E., I. Brevik, J.S. Høye, and K.A. Milton "Temperature correction to Casimir-Lifshitz free energy at low temperatures: semiconductors" *Physical Review E* **78** 021117 (2008).
50. S.A.E. "Frequency spectrum of the Casimir force: interpretation and a paradox" *Europhysics Letters* **83** 053001 (2008).
51. J. S. Høye, I. Brevik, S.A.E., and J.B. Aarseth "Analytic and Numerical Verification of the Nernst Theorem for Metals", *Physical Review E* **75** 051127 (2007).
52. S.A.E., I. Brevik "Casimir force on real materials - the slab and cavity geometry" *Journal of Physics A* **40** 3643 (2007).

53. S.Å.E. "Casimir attraction in multilayered plane parallel magnetodielectric systems" *Journal of Physics A* **40** 1951 (2007).

54. I. Brevik, S.Å.E., and K.A. Milton "Thermal Corrections to the Casimir Effect" *New Journal of Physics* **8** 236 (2006).

### *Conference papers and festschrift contributions*

55. B.K. Smeltzer, E. Æsøy, Y. Li, S.Å.E., "An experimental setup for wave-body forces in shear flows" *Proceedings of IWWWFB-2018* (2018)

56. Y. Li, S.Å.E., "Surface waves generated by a translating and oscillating source atop realistic shear flows" *Proceedings of OMAE18* Paper no OMAE2017-78560 (2018).

57. B.K. Smeltzer, Y. Li, S.Å.E., "Effect on Doppler resonance from a near-surface shear layer" *Proceedings of OMAE17* Paper no OMAE2017-61231 (2017).

58. S.Å.E., P.A. Tyvand "Oscillating sources in a shear flow with a free surface" *Proceedings of the 12<sup>th</sup> International Conference on Hydrodynamics*, Egmond aan Zee, the Netherlands (2016). [http://www.ichd2016.nl/onlineproc/proceedings/display\\_manuscript/49.htm](http://www.ichd2016.nl/onlineproc/proceedings/display_manuscript/49.htm)

59. Y. Li, S.Å.E. "Effect of anisotropic shape on ship wakes in presence of shear current of uniform vorticity" *Proceedings of OMAE16* Paper no OMAE2016-54250 (2016).

60. Y. Li, S.Å.E. "Dispersion relations of waves generated by a travelling oscillating disturbance on a shear current" *Proceedings of IWWWFB-2016*, 24 (2016).

61. S.Å.E., Y. Li "Ship waves at finite depth in the presence of uniform vorticity" *Proceedings of IWWWFB-2015*, pp. 57-60 (2015).

62. Y. Li, S.Å.E. "Initial value problems for water waves in the presence of a shear current" *Proceedings of ISOPE-2015*, vol 3, pp. 543-549 (2015).

63. F. Urdal, T. Utstumo, J.K. Vatne, S.Å.E., J.T. Gravdahl "Design and control of precision drop-on-demand herbicide application in agricultural robotics" *Proceedings of ICARCV-2014* pp. 1689-1694 (2015).

64. K. A. Milton, I. Brevik, S.Å.E. "Thermal issues in Casimir forces between conductors and semiconductors" *Physica Scripta* **T151** 014070 (2012).

65. K. A. Milton, E. K. Abalo, P. Parashar, N. Pourtolami, I. Brevik, S.Å.E. "Repulsive Casimir and Casimir-Polder Forces" *Journal of Physics A* **45** 374006 (2012).

66. K.A. Milton, E.K. Abalo, P. Parashar, N. Pourtolami, I. Brevik, S.Å.E. "Repulsive Casimir Effects" *International Journal of Modern Physics A* **27** 1260014 (2012)

67. K.A. Milton, J. Wagner, P. Parashar, I. Cavero-Peláez, I. Brevik, and S.Å.E. "Multiple scattering: dispersion, temperature dependence, and annular pistons" *Cosmology, Quantum Vacuum and Zeta functions*, *Springer Proceedings in Physics* **137** edited by Odintsov et al. (Springer, 2011), pp. 99-113.

68. S.Å.E., Y. Sherkunov, S.Y. Buhmann, and S. Scheel "Casimir-Polder Potential in Thermal Non-Equilibrium", *Proceedings of QFEXT09, Norman, Oklahoma, September 2009* edited by M. Bordag and K.A. Milton (World Scientific, 2010), pp. 168-177, **ArXiv**: 0910.5608.

69. I. Brevik, S.Å.E., and K.A. Milton "Electromagnetic Casimir Effect in Wedge Geometry and the Energy-Momentum Tensor in Media", *International Journal of Modern Physics A* **25** 2270 (2010).

70. S.Å.E. "The Casimir frequency spectrum: can it be observed?", *Journal of Physics: Conference Series* **161** 012011 (2009).

71. S.Å.E., I. Brevik, J.S. Høye, and K.A. Milton "Low temperature Casimir-Lifshitz free energy and entropy: the case of poor conductors", *Journal of Physics: Conference Series* **161** 012010 (2009).



72. S.Å.E. "Casimir Lifshitz pressure and free energy: exploring a simple model" in *The Casimir Effect and Cosmology: A volume in honour of Professor Iver H. Brevik on the occasion of his 70th birthday* edited by S. Odintsov, E. Elizalde and O.G. Gorbunova (Tomsk State Pedagogical University Press, 2008) pp.45-60, **ArXiv**: 0811.1427.

73. I. Brevik, S.A.E., J.S. Høye, and K.A. Milton "Analytical and numerical demonstration of how the Drude dispersive model satisfies Nernst's theorem for the Casimir entropy" *Journal of Physics A* **41** 164017 (2008).

### **ELECTRODYNAMICS IN MEDIA**

74. I. Brevik and S.Å.E. "Electromagnetic Momentum Conservation in Media" *Annals of Physics* **326** 754 (2011).

75. I. Brevik and S.Å.E. "Possibility of measuring the Abraham force using whispering gallery modes", *Physical Review A* **81** 063830 (2010).

### **Social Science Publications**

76. S.A.E. "Deliberations of a Nuclear Terrorist: Patience or Opportunism" *Defense & Security Analysis* **26** 353 (2010)

77. S.A.E. "Safeguards against Nuclear Terrorism: HEU vs. Plutonium" *Defense & Security Analysis* **24** 129 (2008)

### **Theses**

- ▶ S.Å.E. "Dispersion forces in Micromechanics: Casimir and Casimir-Polder forces affected by geometry and non-zero temperature", Ph.D. thesis, Norwegian University of Science and Technology, Department of Energy and Process Engineering (March 2011).
- ▶ S.A.E. "Nuclear Terrorism and Rational Choice", Ph.D. thesis, King's College London, Department of War Studies (September 2009). Available for purchase through Lambert Academic Publishing (2011).
- ▶ S.A.E. "Casimir Effect in Plane Parallel Geometry", Master's Thesis, Norwegian University of Science and Technology, Department of Physics (July 2006).