

Curriculum Vitae (2012) – short version + publication list

Peter Apell (born September 11 – 1952, married, 3 children)

Affiliation: Department of Applied Physics, Chalmers University of Technology, S-412 96 Göteborg, Sweden. (apell@chalmers.se , +46-702-666 407)

Education:

1. Master in Engineering Physics, Chalmers 1976.
2. PhD in Theoretical Physics, Chalmers 1982.

Professiona Employment:

Post-docs:

1. IBM post-doctoral fellow 1982 at University of Pennsylvania, Philadelphia, USA.
2. NFR (VR) post-doc 1984-1985 at National Bureau of Standards (now National Institute of Standards and Technology), Gaithersburg USA.
3. Nordic Council post-doc 1985-86 at Norwegian Institute of Technology, Trondheim, Norway.

Chalmers/Umeå:

1. Professor 1996. Present and permanent position.
2. Associate Professor (permanent position) 1987-1996.
3. Senior Lecturer (permanent position) at Umeå University 1988-89.
4. Assistant Professor 1986, research ass. 1983-84, and teaching ass. 1976-81

Administrative positions

1. Pro vice-chancellor Blekinge Institute of Technology 1989-91
2. Pro vice-chancellor University of Borås 1994-98

3. Deputy vice-chancellor/communication manager, Kristianstad U 2001-08.
4. Head of Applied Physics department, Chalmers 2011-

Scientific and other academic activities

I have received my basic training at the Solid State Theory division of the Institute of Theoretical Physics at Chalmers University of Technology under the supervision of Professors Stig Lundqvist and Gautam Mukhopadhyay.

I have spent altogether 8 years abroad as post-doc and visiting professor (US, Spain, Italy, India, France and Norway). My research has been financed by the Swedish National Science Research Council in various ways for 25 years. I have been the main supervisor for the daily work of 8 Ph.D. students and another 5 licentiate students. I have supervised 52 BSc and MSc theses. I have had many referee tasks and nine Ph.D. oppositions and held a vast number of talks on my research in Sweden and abroad.

Presently I am developing an initiative in Living State Physics, i.e. Solid State Physics using living systems as inspiration to a more complex physics approach, coupling this to the experimental tools of plasmonics for sensing purposes.

I have spent 1/3 each of my career in

a) university administration (Blekinge Institute of Technology, Chalmers, University of Borås, University of Gothenburg and Kristianstad University) specializing in science communication, outreach activities and the building of research infrastructure.

b) teaching and teaching administration at a number of universities in Sweden and abroad. Especially I have set up an educational programme in Biological Physics at Chalmers.

c) finally 1/3 of my time has been devoted to research where current projects are within electric field influence on wound engineering and optical response of nano-sized systems as major research areas.

To this should be added some very applied projects in medical physics in collaboration with medical faculties and companies in Sweden and abroad. Finally I should add that I'm a regular writer in "Fysikaktuellt" magazine within the field of biological physics.

Publications & Patents

See separate list of publications with 218 items.

References: Per Eriksson, vice-chancellor Lund University and Bengt Lörstad, former vice-chancellor, Kristianstad University

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2. The electromagnetic field near a metal surface in the semiclassical infinite barrier model, P Apell, Physica Scripta **17**, 535 (1978).
3. Excited states in Yttrium orthovanadate studied by electron energy loss spectroscopy and x-ray photoelectron spectroscopy, I M Curelaru, E Suoninen, P Ahlqvist, P Apell, E Minni, T Rönnhult and K-G Strid, Phys. Rev. **B22**, 4698 (1980).
4. Quantum size effects on optical properties of thin films, P Apell and P Ahlqvist, Physica Scripta **22**, 659 (1981).
5. The dynamical versus static asymptotic behaviour of the spatial Fourier transform of the Lindhard dielectric function, P Apell, Physica Scripta **23**, 284 (1981).
6. Quantum size effects in photoelectric yield spectra of thin films, P Ahlqvist and P Apell, Physica Scripta **23**, 815 (1981)
7. A simple derivation of the surface contribution to the reflectivity of a metal, and its use in the van der Waals interaction, P Apell, Physica Scripta **24**, 795 (1981).
8. On the surface photoelectric effect in Aluminum, P Apell, Physica Scripta **25**, 57 (1982).
9. On the hydrodynamical theory for surface plasmons, P Ahlqvist and P Apell, Physica Scripta **25**, 587 (1982).
10. A general non-local theory for the electromagnetic response of a small metal particle, P Apell and Å Ljungbert, Physica Scripta **26**, 113 (1982).
11. A unified approach to the electromagnetic response of metals, P Apell, Thesis 1982 (Institute report).
12. Red shift of surface plasmons in small metal particles, P Apell and Å Ljungbert, Solid State Commun. **44**,1367 (1982).
13. The role of electron-hole pair excitations in the optical absorption of metals, particularly metal spheres, Å Ljungbert and P Apell, Solid State Commun. **46**, 47 (1983).
14. Non-local aspects of second harmonic generation at a metal surface, P Apell, Physica Scripta **27**, 211 (1983).
15. Vibrational damping of adsorbed molecules, effects of a realistic metal surface, P Apell, Solid State Commun. **47**, 615 (1983).
16. Effects of non-locality and surface diffuseness on the electromagnetic response of a vacuum metal interface, P Apell, Solid State Commun. **47**, 619 (1983).

17. Anomalous electron energy loss in small spheres, D R Penn and P Apell, J. Phys. **C16**,5729 (1983).
18. Optical properties of small metal spheres; surface effects, P Apell and D R Penn, Phys. Rev. Lett. **50**, 1316 (1983).
19. Sum rules for surface response functions with application to the van der Waals interaction between an atom and a metal, B N J Persson and P Apell, Phys. Rev. **B27**, 6058 (1983).
20. Non-local electromagnetic effects at metal surfaces, S Lundqvist and P Apell, J. de Physique 44, **C10-305** (1983).
21. The valence electron excitations and the optical properties of adsorbed atoms and molecules on metal surfaces, E Burstein, A Brotman and P Apell, J. de Physique 44, **C10-429** (1983).
22. Raman scattering from atomic adsorbates on metal surfaces; some elementary considerations, P Apell, E Burstein, A Brotman and M Sunjic, Bull. Am. Phys. Soc. **28**, 526; KG3, KG4 and KG5 (1983).
23. Non-local effects in the far-infrared absorption of small metal particles, P Apell, Physica Scripta **29**, 146 (1984).
24. Raman scattering and second harmonic generation from adsorbates; a simplified approach, P Apell, Physica Scripta **29**, 150 (1984).
25. Improved description of the van der Waals interaction in physisorption, C Holmberg and P Apell, Solid State Commun. **49**, 513 (1984).
26. The role of bound electrons in the non-local surface response of metals, P Apell and C Holmberg, Solid State Commun. **49**, 693 (1984).
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31. Effective relaxation time in small spheres: diffuse surface scattering, P Apell, R Monreal and F Flores, Solid State Commun. **52**, 971 (1984).
32. Theory of spin polarized secondary electrons in transition metals, D R Penn, P Apell and S M Girvin, Phys. Rev. Lett. **55**, 518 (1985).
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34. Far-infrared optical absorption due to surface phonon excitations in small metal particles, R Monreal, J Giraldo, F Flores and P Apell, *Solid State Commun.* **54**, 661 (1985).
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36. Surface Electrodynamics, P. Apell, book manuscript 175p (1985).
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