

## Curriculum Vitae (16-12-2011)

### Prof.dr. Albert Polman

Director and Scientific Group Leader

FOM Institute AMOLF

Science Park 104, 1098 XG Amsterdam, The Netherlands

Phone: +31 20 754 7100, E-mail: [polman@amolf.nl](mailto:polman@amolf.nl), Internet: [www.erbium.nl](http://www.erbium.nl)



### Personal details

Date of birth: April 21, 1961

Place of birth: Groningen, The Netherlands

Nationality: Dutch

### Scientific education

1989 PhD Thesis: *Beam-induced phase transformations in silicon* (Utrecht University, advisors: F.W. Saris and W.C. Sinke)

1985 MSc Physics, Utrecht University (The Netherlands)

1981 BSc Physics, Utrecht University (The Netherlands)

### Past positions

2006-present Director and Scientific Group Leader, FOM Institute AMOLF in Amsterdam.

2005 Head, Center for Nanophotonics, FOM Institute AMOLF

2003-2004 Visiting associate, California Institute of Technology, USA (*sabbatical leave*)

1999-2004 Department Head, FOM Institute AMOLF

1996-2011 Professor of Nanophotonics, University of Utrecht

1996- Tenured scientific group leader, FOM Institute AMOLF

1991-1996 Scientific project leader, FOM Institute AMOLF

1989-1991 Post-doctoral staff researcher, AT&T Bell Laboratories (Murray Hill, NJ, USA)

1985-1989 PhD researcher, FOM Institute AMOLF

### Distinctions and awards

2010 ERC Advanced Grant

2010 Fellow, Materials Research Society (MRS, USA)

2009 Member, Royal Dutch Academy of Sciences (KNAW)

2008 Honorary Member, International Committee Ion Beam Modification of Materials (IBMM) conference

2007 Member, Royal Dutch Society of Sciences (Koninklijke Hollandse Maatschappij der Wetenschappen)

### Publications, patents and presentations

Over 200 publications in refereed international journals; > 10.000 citations; 26 papers cited more than 100 times; Hirsch index: 58; field-normalized citation impact: 5.18 times world average; relative representation in top-1% best cited papers worldwide: 18.83. Polman is co-inventor on 5 patents, 5 other patent applications are pending. He has given more than 100 invited presentations at international conferences, of which 7 as plenary or keynote speaker.

### PhDs, postdocs, undergraduate students supervised, prizes

Total supervised: 17 PhD students, 12 postdocs, 23 undergraduate students. Two PhD titles were awarded *cum laude*. Awarded prizes: Else Kooij prize for the best PhD thesis in micro-electronics/optics (G.N. van den Hoven, 1996), FOM thesis award for the best PhD thesis in physics (E. Verhagen, 2010), Shell award for the best master thesis in physics (J. van de Groep, 2011). Present supervision: 8 PhD students, 1 undergraduate student.

### Top-five recent publications (2009-2010)

1. *A silicon-based electrical source of surface plasmon polaritons*, R.J. Walters, R.V.A. van Loon, I. Brunets, J. Schmitz, and A. Polman, Nature Mater. **9**, 21 (2010) (with News and Views article)
2. *Plasmonics for improved photovoltaic devices*, H.A. Atwater and A. Polman, Nature Mater. **9**, 205 (2010) (with Editorial article)
3. *Single-layer wide-angle negative index metamaterial at visible frequencies*, S. Burgos, \* R. de Waele, \* A. Polman, and H.A. Atwater, Nature Mater. **9**, 407 (2010)
4. *Broadband omnidirectional antireflection coating based on subwavelength surface Mie resonators*, P. Spinelli, M.A. Verschuuren, and A. Polman, Nature Comm. **3**, in press (2012)
5. *Three-dimensional negative index of refraction at optical frequencies by coupling plasmonic waveguides*, E. Verhagen, R. de Waele, L. Kuipers, and A. Polman, Phys. Rev. Lett. **105**, 223901 (2010)

### Memberships/program directorships (selection)

- 2011-present Program director, FOM Focus group *Light management in new photovoltaic materials*
- 2010-present Member, Executive Board National Nano-initiative NanoNextNL (125 M€ national research program)
- 2010-present Member, Young Energy Scientists (YES!) Advisory Board of FOM
- 2009-present Program director, FOM Program *Nanophotovoltaics*
- 2008-present Member, Steering Committee Physics @ FOM Veldhoven, the yearly national physics conference in The Netherlands (> 1600 attendees)
- 2004-present Member, Steering Committee FOM-Philips Industrial Partnership Program *Microphotonic light sources / Improved solid state light sources*
- 2004-present Member, Program Committee FOM-Shell/Helianthos Industrial Partnership Program *Third generation solar cells*
- 2004-present Member, Advisory Board, Centre of Excellence for Advanced Silicon Photovoltaics and Photonics of the University of New South Wales (Australia)
- 2002-2010 Program director, Flagship *Nanophotonics*, Dutch Nanotechnology Program NANONED
- 2004-2010 Member, Scientific Advisory Board, Leibnitz Research Center Rossendorf (Germany)
- 2004-2008 Member, Scientific Advisory Board, University of Surrey Ion Beam Centre (UK)
- 2005-2008 Chair/Member, Nanophysics and technology Advisory Board of FOM
- 2004-2005 Member, Board of Directors of the Materials Research Society (Pittsburgh)
- 1999-2008 Program director, National FOM research program *Photon physics in optical materials*
- 1998-2008 Secretary/Member, International Committee, Ion Beam Modification of Materials conference series

### Journal editorships

- 2011 Co-guest Editor, special issue on green photonics, J. Optics (IOP)
- 2007-present Member, Editorial Advisory Board of NanoLetters (American Chemical Society)
- 2000-2006 Member, Advisory Editorial Board of Physica B (Elsevier)
- 2000 Volume Organizer (co-editor), MRS Bulletin

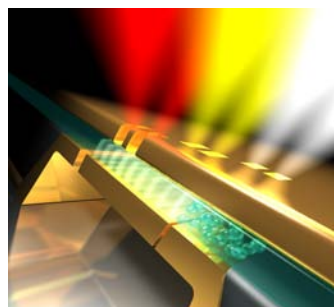
### Conference Organisation

- 2006 Chairman, First Gordon Research Conference *Plasmonics - optics at the nanoscale* (Keene, NH, USA)
- 2004 Co-chair, Symposium *Nanophotonic materials*, European Materials Research Society Meeting (Strasbourg)
- 2003 Co-chair, MRS Spring Meeting (San Francisco, USA, > 3000 attendees)
- 1998 Chairman, 11<sup>th</sup> International Conference on Ion Beam Modification of Materials (Amsterdam, 350 attendees)
- 1997 Co-organiser, Symposium *Materials and devices for Si based opto-electronics*, MRS Spring Meeting (San Francisco, 1997)
- 1996 Co-organiser, Symposium *Rare earth doped semiconductors II*, MRS Spring Meeting (San Francisco, 1996)
- 1994 Co-organiser, Symposium *Film synthesis and growth using energetic beams*, MRS Fall Meeting (Boston, 1994)

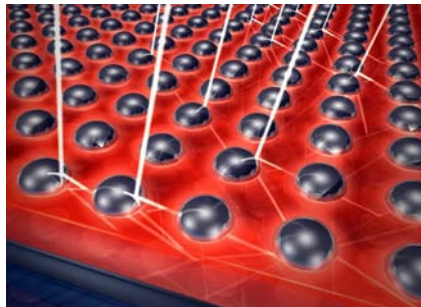
### Industrial collaborations (leading to joint publications or patents)

- 2005-present Philips Research: microphotonic light sources, plasmonics, soft nano-imprinting
- 2005-present FEI Company: plasmonics, focused ion beam nanofabrication, cathodoluminescence
- 1999-2001 Symmorphix: optical doping, planar optical amplifiers
- 1996-2000 AKZO-Nobel: polymer optical amplifiers
- 1995-2002 ST Microelectronics: Si-based light sources
- 1991-1994 PTT/KPN: optical doping, planar optical amplifiers
- 1989-1991 AT&T Bell Laboratories: optical doping, integrated optics

Electrical plasmon source  
Nature Mater. **9**, 21 (2010)



Plasmon-enhanced solar cells  
Nature Mater. **9**, 205 (2010)



Negative-index metamaterial  
Nature Mater. **9**, 407 (2010)

