

ANDREAS HÅKANSSON

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Date of Birth: 24th of May, 1976

Nationality: Swedish

EDUCATION

Ph.D in Electrical Engineering (2006),
Polytechnic University of Valencia, Valencia, Spain

Master in Applied Physics and Electrical Engineering (2002),
Technical University of Linköping, Linköping, Sweden

AWARDS AND FELLOWSHIPS

Extraordinary Thesis Award (2007)
Polytechnic University of Valencia, Valencia, Spain

ICYS Research Fellowship (2006)
International Center for Young Scientists, National Institute for Material Science, Japan

JSPS Research Fellowship (2005)
Japanese Society for Promotion of Science, Japan

Best Graduate Student Presentation Award (2002)
Award at the meeting of Acoustic Society of America, Mexico

PROFESSIONAL EXPERIENCE

DAS PHOTONICS, Valencia, Spain 2010-present

Research Coordinator

Coordinator of all research activities at DAS Photonics, which are mainly related to silicon photonics technology.

DAS PHOTONICS, Valencia, Spain 2007-present

Project Manager

Involved in various national and European projects related to applied integrated photonics. Work packages embrace design and characterization of silicon photonics devices.

Areas of emphasis included:

- Silicon photonics based electro-optical modulators
- Photonic label free bio-sensors
- Coupling and packaging of silicon photonic chips
- IR plasmonic filters based on the extraordinary optical transmission phenomenon

NATIONAL INSTITUTE FOR MATERIAL SCIENCE, Tsukuba, Japan 2006-2007

ICYS Research Fellow

Conducting independent research within a top rated international research center. Initiated

international collaborations with various experimental and theoretical groups in Japan, Spain, United Kingdom and Italy, for fabrication of inverse designed and optimized nano-featured photonic devices. Execution of activities in the first year received top grades in the internal review process.

Key Project and areas of emphasis included:

- **Design, fabrication and characterization of sub-wavelength featured photonic components:** From design to fabrication and characterization of photonic devices by using micromanipulation of dielectric photonic plates. Gained practical clean-room experience for Focus Ion Beam etching and deposition on SOI wafers. Utilized scanning electron microscope and atomic force microscope for sample preparation and physical characterization.

NATIONAL INSTITUTE FOR MATERIAL SCIENCE, Tsukuba, Japan

2006

JSPS Research Fellow (short term)

Acquired experience working within a Japanese research team. Development and design of an optimized light emitting cavity for full control of the scattering of light, including collimation and simultaneous suppression and enhancement of the spontaneous emission.

POLYTECHNIC UNIVERSITY OF VALENCIA, Valencia, Spain

2002-2006

PhD Student, Electrical Engineering

Gained theoretical experience across a broad range of photonic crystal engineering concepts, including, photonic crystal waveguides and cavities, photonic crystal band structure engineering and metamaterials. **The thesis resulted in 13 reviewed journal publications with a present h-index of 9.**

Key Projects and areas of emphasis include:

- **Inverse design and optimization of photonic devices:** Developed an inverse design software package, based on Genetic Algorithm optimization, for photonic component design.
- **Simulation and visualization of electromagnetic scattering problem:** Implemented a semi analytical field solver for simulation and visualization of light propagation through sub-wavelength featured dielectric structures.

SELECTED PATENTS & PUBLICATIONS

A. Håkansson et al., “Enlaces inalambricos digitales con modulacion de fase multinivel basados en fotonica” Spanish patent, Application No.:200930317, Filing Date: June 2009

J. Volk, **A. Håkansson**, H. T. Miyazaki, T. Nagata, J. Shimizu, and T. Chikyow. “Fully engineered homoepitaxial zinc oxide nanopillar array for near-surface light wave manipulation” Appl. Phys. Lett 92, 183114 (2008)

A. Håkansson, H. T. Miyazaki, and José Sánchez-Dehesa, “Full control of spontaneous emission using inverse designed light emitting scattering optical elements”, Phys. Rev. Lett. 96, 153902 (2006)

TECHNICAL BACKGROUND

Software: Crystal Wave, Raith150, Fortran 90, C++, C# .NET, Origin, MatLab, Mathematica, Macromedia Flash, AutoCAD 2005, 3DsMAX, Adobe Illustrator, Adobe Photoshop, Adobe Premiere, LaTeX

Tools: Fibre-To-The-Chip characterization set-up, Focus Ion Beam (sputtering and deposition), Scanning Electron Microscope, Atomic Force Microscope, Micromanipulator