
EDUCATION

Polytechnic University of Valencia, Spain, 2006

Ph.D in Electrical Engineering

Technical University of Linköping, Sweden 2002

Master in Applied Physics and Electrical Engineering

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, Tsukuba, 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, Nov. 2007 to present

Research Coordinator / Project Manager

Coordinating all silicon photonics research activities at a high-tech SME. As research coordinator I've gained an in depth understanding of silicon photonics and its commercialization in communication and sensor technologies. My tasks include planning, task management, setting up proper goals and to coordinate and negotiate European multinational project proposals.

Project manager working in a European integration project where DAS Photonics develops a silicon photonics transmitter and receiver for a DQPSK modulated 10Gbps mm-wave wireless link. Experience in packaging, in CMOS process flow as well as in system testing using digital communication analyzer and BERT for 10Gbps transmitter (including integrated nested MZI carrier depletion modulators) and receiver (including integrated high-speed Ge photodetectors).

Other technical tasks include setting up an optical characterization lab for active silicon photonics chip characterization using both horizontal coupling and grating couplers. Design using commercial software (Rsoft, Aspic and Photon Design) as well as MatLab simulations. Characterization and testing of various passives and tunable photonics components (grating couplers, inverted tapers, WDM gratings, MZI switches, MMIs, directional couplers, polarization splitters and converters).

NATIONAL INSTITUTE FOR MATERIAL SCIENCE, Tsukuba, Japan, May 2006 to Nov 2007

ICYS Research Fellow

Conducted independent research within an exclusive international research center for young scientists. Coordinated international and interdisciplinary collaborations with various groups in Japan, Spain, U.K. and Italy, with the goal to realize unique optimized 3D featured photonic devices. Execution of activities in the first year received top grades in the internal review process.

My research activities included:

- Design of silicon based nano-featured 3D photonic devices using own developed photonic design tool and Photon Design.
- Nano-fabrication in clean-room environment using focus ion beam milling and micromanipulation of designed photonic structures.
- Characterization of free optics micro-scale photonic components.

NATIONAL INSTITUTE FOR MATERIAL SCIENCE, Tsukuba, Japan, Aug 2006 to Nov 2006

JSPS Research Fellow (short term)

Acquired experience working within a Japanese research team. Developed and designed 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 engineering experience across a broad range of photonic device design concepts including design of photonic crystal waveguide coupler, lenses, demultiplexers and spotsizer converters. The thesis titled "Inverse design of nanoscaled photonic devices" resulted in **13 reviewed journal publications with a present h-index of 9**. Key projects and areas of emphasis included:

- Inverse design and optimization of photonic devices: Programmed 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.
- Verification of the photonic designs and adapt them to acoustics waves propagation and scattering. Realization and testing of analogous types of acoustic devices called scattering acoustic elements.

TECHNICAL BACKGROUND

Software: Fullwave, BeamPROP, Crystal Wave, Aspic, MatLab, LabView, Fortran 90, C++, C#.NET, Origin, SketchUp, Mathematica, Macromedia Flash, AutoCAD, 3DsMAX, Adobe Illustrator, Adobe Photoshop, Adobe Premiere, LaTeX

Tools: Fiber-To-The-Chip characterization, BERT, Network Analyzer, Focus Ion Beam (sputtering and deposition), Scanning Electron Microscope, Atomic Force Microscope, Micromanipulator, FT-IR

LANGUAGES

Swedish	Native
English	Expert
Spanish	Expert
German	Intermediate
Japanese	Intermediate