Curriculum Vitae :Sergio Doneda

Date of Birth : 9 May 1963
Place of birth : Erba (Como) ITALY
Education : Technical diploma " Industrial chemistry " , Vote 60/60, year 1982
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Work experience

Current : Scuola Superiore S. Anna , Pisa Italy .Operations Manager at INPHOTEC, Integrated Photonic Technologies Center (http://www.inphotec.it/) in charge of pilot line start up .
The nanotechnology center is a pilot line for 6" wafer size upgradable up to 8" on 700 m^2 clean room area.
The main results achieved:

- Facilities design
- Facilities Start
- Process start up
- Device development based on deep submicron structure for Silicon Photonics and Silicon Nitride waveguide technologies for Data Center , Telecom and Sensor application.

- **May 2008 Up to June 2012 :** CTO &COO "Technology &Operation Manager " at **Pramac Swiss SA**,

  32.5 MWp Capacity Plant , Micromoph™ Technology**.**

  Pramac Swiss was Leader in the production of Photovoltaic Micromorph™ module, Silicon Thin film technology Double junctions on large size Substrate (1300x1100mm) with power efficiency of 9 %.

  The production lines are an End-to-End Solutions from Oerlikon Solar AG, Hauptstrasse 1a -9477 - Trubbach(CH)

  The Manufacturing Line are located on an area 33.000 m2 of which 16.000 m2 are covered with Clean room class 10K and grey room class 100K ,located in Riazzino (Locarno CH).

  The main result achieved :

  - Low voltage module in Full Productions V3 (70V Voc)
  - High performance ratio Pr (performance ratio).
  - New mechanical solutions : Back rail and Frame in Productions
  - Certifications : IEC , UL , MCS

During the <u>start phase</u> I was in charge of :

- Facilities design
- Transfer technology form Oerlikon Solar
- Process Start up
- Ramp in volume
- Module specifications and Certifications according all PV standards
- Row material specs definitions

<u>After ramp up</u>

I managed a following activity, in charge of:

- Quality insurance
- Process engineering
- Product engineering
- Productions and maintenance
- Facilities
- Safety

In total 115 employs: 25 Engineers, 30 Technicians and Maintenances and 60 Operators.

- **2000 (December) –May 2008**: **Senior process** eng at "nano technology group" **Pirelli Labs (Milano)**

    - I was in charge for design and realization of the main building; relative facilities and clean room class 10 definitions and start up (1000 sq/meters).
    - I was in charge of developing glass on silica technology High contrast index up to 4.5% with high aspect ratio structure.
    - In charge for developing of Silicon photonic platform (SOI) for tunable device (i.e. tunable mirrors, integrated gratings), with node resolution 80nm. Realization of wafer prototypes with integrated waveguides, tapers, etched holes and grooves for FTTH (Fiber to the Home) products.
    - I was in charge for Process Development for Liquid Cristal Tunable Filter 40 Ch. The technology was an integrations of High Contrast passive optics (Silicon based) and Liquid Cristal cell (2 um gap glass wafer based) .
    - Equipment installed and used: ICP , Elicon Plasma , LPCVD for Poly and Si3N4 layer, APCVD and PECVD for doped glass , Electron beam lithography for sub micron resolution, Karl Suss lithography.

- **1997 (April)- 2000 (Nov): Supervisor in R&D** for "Microsensor group" at **Gefran Sensorsi (Brescia)**

  - I was in charge for technology transfer from MAT TUB (**Berlin University** – in cooperation with **Prof. Dr.-Ing. Ernst Obermeier**) to Gefran, of bulk Silicon process for "Piezoresistor pressure sensor".
  - I developed the Anodic Bonding process for Silicon and Pyrex glass, and direct bonding Si-Si.
  - I developed Silicon pressure component for industrial market in the range 250 mbar to 50 bar.
  - Developed the complete activity for "High temperature semiconductor device" for Harsh environment (SOI technology) realizing a series of prototypes of full packaged sensors up to 350°C, 350 bars.
  - I also started a class 100 clean room facilities and installed and started up the following equipment: LPCVD and Solid source doping Centrotherm, Pecvd and plasma etching system from Nextral and sputtering from Unaxis , Karl Suss exposure and Anodic and Silicon Direct bonding.

- **1994 (April) -1997 (March)**: **Supervisor at UCF** (Unità componenti Fotonici) at Italtel (Settimo Milanese)
  - I was in charge for start up of clean room 100 class 700 sqm facilities in Italtel. I selected and installed the following equipment :Lpcvd for oxide doped and un doped glass layers, dry etch from Applied materials, metal and evaporation from Leybold , photolithography toll front and back side alignment , set up for silicon Anisotropy wet etch . XRF analytical equipment.

- **1992 (Sept) -1994 (March)**: Supervisor at UCF (Unità componenti Fotonici) at **Italtel** (Settimo Milanese)
  - I was in charge for the "Front end" technology transfer from **AT&T Bell Labs, Murray Hill NJ (USA**) to Italtel , in the frame of contract between AT&T and Italtel for development of " Silicon Optical bench Technology".
  - During this period I joined the "Passive Optical component department " managed by Dr. Phil Antony. My activity was focused on waveguide processing, metal and solder interconnections and micro-mechanics in Silicon for Optical component.

During all period in Italtel the main results of my group (I managed 10 engineers) were:

- Laser and PIN OSA (Optical sub Assembly)
- turning mirror both for passive and active component application
- micro mechanics (V-groove for fiber pig tail)
- passive guide Technology Glass on Silicon for WDM, AWG 64 channel components
- development of Silicon Optical bench technology for fully integrations of Active (Laser and receiver) and Passive waveguide components
- Develop Optical Package on wafer scale

- **1988 (Dec) -1992 (August)**: **Process Engineering** in Optronic group at **Pirelli Cavi RD** (Milano)
  - In charge of technology transfer from **Padenborg University**, in cooperation with Prof. Dr. **Wolfgang Sohler**, to Pirelli Cables Labs of LiNbO3 process technology for planar optics applications: according this technology I realized prototype of electro-optical amplitude and frequency modulator up to 4.5 GHz bandwidth .
  - LiNbO3 technology was develop on 4 " wafer " scale.
  - Development of Optical Coating Technology :ARC, WDM filters for Bulk optics .

Start up of class 100 clean room and relative facilities, definition and installations and process start up of the following equipment: SVG track, KS exposure MA6 , Sputtering Leybold Z550, ASM diffusion and oxidation Oven, dicing saw K&S and polishing unit from Logitech; Balzer BAK700 with Kaufmann Source for Ion Assisted Deposition.

- **1987(June) -1988(November)**: **Process Engineering** for "Thin Film Pressure Sensor" **Gefran (Brescia)**
  - In charge of technology transfer from Hamburg University TUHH(in cooperation with **Prof. Jorgen Muller**) to Gefran Sensorsi of "Thin film technology for pressure sensor".
  - We realized productions line for Thin film on metal for Sensor for range 2 bar up to 250 bar.
  - Start up of Clean Room class 100 and Facilities, selection and installation of PVD and PECVD.
  - Equipments: STS PECVD, MRC and Leybold Pvd tools, Karl Suss exposure equipments.

- **1984(March)-1987(May)** : **Process Engineering at SGS –Thomson** , **Agrate (MB)** CMOS line.
  - In charge of photo resist processing cycle and mask exposure. Equipment: SVG track coating and development, Perkin Elmer 240 and 340 exposure tool with automatic fine alignment system (resolution 2.0um).
  - In charge of development of plasma dry etching process for: Si poly, Si3N4 and SiO2 layers.
  - Equipment: Tegal 701 and 801

- **1983 -1984 (February)**: Military Service

Publications:

- Spettrofotometri integrati con la tecnologia della Microlavorazione del silicio
  Sergio Doneda Brescia Ricerche Marzo 2000 n.30 Pages 14 -18

- "Line-edge roughness (Ler) reduction strategy for SOI waveguide fabrication,
  Fabrizio Giacometti, **Sergio Doneda**, Melissa Di Muri, Giorgio Mutinati, Alessandro Nottola, Maria Chiara Ubaldi
  Microelectronic Engineering Volume 85, Issues 5–6, May–June 2008, Pages 1210–1213

- "Silicon on insulator Based integrated Tunable Add&drop Filter for metro DWDM Networkws"
  Cabas, A. ; Di Muri, M. **; S. Doneda** . ; Galli P.
  Conference: Transparent Optical Networks, 2007. ICTON '07. 9th International Conference on, Volume: 1

- "Fabrication of Ultra High Aspect Ratio Bragg Gratings for Optical Filter
  Fabrizio Giacometti, **Sergio Doneda**, Davide Crippa, Melissa Di Muri, Audrey Garnier
  Microelectronic Engineering Volume 85, Issue 7, July 2008, Pages 1511–1513

- 130 Watt Stabilzed module power in Production Avarage MICROMORPH® TANDEM MODULES S.
  S.Doneda, A. Cabas & N. Galimberti Pramac Swiss, Riazzino, Switzerland H.D. Goldbach, M. Marxer, J. Cashmore & I. Sinicco Oerlikon Solar, Trübbach, Switzerland
  26th European Photovoltaic Solar Energy Conference and Exhibition Hamburg 05. - 09.09.2011

- "Experimental evaluation of residual Added Signal Crosstalk in a Silicon Photonics Integrated ROADM "
  F.Testa,V. Sorianello**, S.Doneda**
  ConferencePaper·March2014 DOI:10.1364/OFC.2014.Th2A.30 Conference: Optical Fiber Communication Conference

Patents :

Method of Making Grating Structure having High Aspect ratio

US2008038660

Semiconductive pressure sensor

DE60031066T - 2007-05-03

Pressure sensor with compensation of the thermal expansion of its housing

EP1662242 - 2006-05-31

PROCESS TO CREATE THE COUPLING IN AN OPTOELECTRONIC DEVICE BETWEEN AN OPTICAL FIBER AND A WAVEGUIDE AND DEVICE OBTAINED FROM THIS PROCESS

WO9822841 - 1998-05-28

MODULO OTTICO PER RETI DI ACCESSO A SISTEMI DI COMUNICAZIONE A LARGA BANDA

ITMI961589 - 1998-01-26

PROCEDIMENTO PER REALIZZARE L'ACCOPPIAMENTO IN UN DISPOSITIVO OPTOELETTRONICO TRA UNA FIBRA OTTICA ED UNA GUIDA D'ONDA

ITMI951013 - 1996-07-26

Sergio Doneda 07 September 2016