Orsola Di Monaco

Via del Plebiscito 42
03100 Frosinone
Italy
Tel: +39.380.29.79.459
e-mail: dimonaco_orsola@hotmail.com

Education

University of Franche-Comté
June 1997 *PhD* (summa cum laude) Besançon - France
Science for Engineer
Thesis work: Microwave sapphire cryogenic resonators characterized by very high Q_factor for metrological and space applications.

University "La Sapienza"
July 1992 *Laurea (degree)* Rome - Italy
Physics speciality Electronics
Thesis work: Planar magnetostatic wave filters for microwave frequencies applications.

Other titles

University “Guglielmo Marconi”
March 2015 *Laurea (degree)* Rome, Italy
Economics
Thesis work: Technological innovation as source of competitif avantage: nanotechnologies.

Stage on the ñMagnetic materials propertiesò, Scuola Superiore G.Reiss Romoli, LôAquila, Italy, September 1990.

Stage on the ñMaterials properties at cryogenic temperatureò, Centre National de la Recherche Scientifique (C.N.R.S.), Grenoble, France, May 1995.

Experience

Pwani University
Present position Physics lecturer Kilifi, Kenya

Atena Study Center, Learning Point of the University ñNiccolò Cusanoò
2015 - 2016 *Physics Lecturer* Frosinone, Italy

Interuniversity MicroElectronics Center (I.M.E.C.)
1999 - 2002 *Researcher* Leuven - Belgium

· Modeling, design and testing of RF MEMS switches, for space and telecom applications:
- full electromagnetic and electrical analysis of different capacitive MEMS switches to

determine the best configuration corresponding to the expected RF performance;
- estimation of the parasitic effects;
- influence of the packaging on the device performance: design of an equivalent electrical model including the lumped elements related to the packaged structure.

· Modeling and design of RF Transmitter-Receiver systems, using a combination of two or more RF MEMS switches and including the Input and Output matching circuits in the transmission and reception blocks, in order to optimize the RF performance in all frequency span.

· Electromagnetic and electrical analysis, modeling and design of microwave micromachined tunable dielectric resonators, made of high resistivity silicon (HR-Si).

· Preparation of the scientific reports.

· Supervision postgraduate research students.

Laboratoire de Physique et Métrologie des Oscillateurs (L.P.M.O.) – C.N.R.S. – University of Franche-Comté
1993 - 1998 *Researcher* Besançon - France

· Electromagnetic analysis, modeling, design and testing of dielectric resonators functioning on higher order modes (Whispering Gallery=WG), for microwave frequencies applications:
- measurement of the intrinsic properties of different dielectric materials at room and low temperature;
- implementation of an original modal selection method, in order to suppress the spurious modes around the operational resonance;
- realization of a WG cryogenic sapphire resonator with a quality factor of 35 millions at 7 GHz;
- realization of a frequency discriminator (passive assembly) and a very low phase noise oscillator (active assembly), using the WG modes sapphire resonators.

· Measurement of the acoustic field around a point source with a high sensitivity heterodyne laser probe.

· Preparation of the scientific reports.

· Microwave techniques Lecturer.

Istituto di Elettronica dello Stato Solido (I.E.S.S.) – National Research Council (C.N.R.)
1990 - 1993 *Researcher* Rome - Italy

· Electromagnetic analysis, design and characterization of MagnetoStatic Wave (MSW) filters, for microwave frequencies applications:
- realization of a stop-band filter, tunable between 2 GHz and 12 GHz;
- realization of a ferromagnetic power limitator functioning in S and L band;
- design of serial stop-band and pass-band microwave ferromagnetic filters, characterized by ripples smaller than 3 dB all over the connection band.

· Preparation of the scientific reports.

Awards

Award of the ñSociete' Francaise des Microtechniques et Chronometrieò (S.F.M.C.), for the results obtained on the microwave sapphire cryogenic resonator and related oscillator.

Skills

· ADS (Advanced Design Systems)
· HFSS (High Frequency Systems Simulation)
· Powerpoint
· Microsoft Excel
· Microsoft Word
· Network Analyzer
· Spectrum Analyzer

Languages

· Italian, French, English.

Projects

MEMS2TUNE
Ericsson ï Alcatel ï Interuniversity Microelectronics Center
Duties RF MEMS module for adaptive time-delay units

M.E.D.I.N.A. (**M**icrowave **E**lectrostatic micromachined **D**ev**I**ces for o**N**-board **A**pplications)
European Space Agency ï Interuniversity Microelectronics Center
Duties Modeling and design of RF MEMS switches and RF transmitter-receiver systems.

M.I.S.T.R.A. (**MI**cro-electromechanical **S**ystem for **T**elecommunication and **R**adar **A**pplications),
Alcatel ï Interuniversity Microelectronics Center
Duties Modeling, design and testing of RF MEMS switches.

A.F.M.M. (**A**tomic **F**orce **M**icroscopy and **M**icroacoustics)
European Commission ï University of Franche- Comté, Programme Human Capital Mobility.
Duties Measurement of the acoustic field around a point source with a high sensitivity heterodyne laser probe.

P.H.A.R.A.O. (**P**rojet dô**H**orloge **A**tomique par **R**efroidissement dô**A**tomes en **O**rbite),
Centre National des Etudes Spatiales.- Laboratoire de Physique et Métrologie dels Oscillateurs
Duties Realization of an ultra stable microwave oscillator based on a cryogenic whispering

gallery mode dielectric resonator.

MEMO (**M**icrotechniques en **E**lectronique **M**ecanique et **O**ptique),
European Commission ï University of Franche-Comté, Programme Human Capital Mobility.
Duties Modeling, design and testing of microwave Whispering Gallery mode sapphire resonators.

E.S.A. – I.E.S.S. (**E**uropean **S**pace **A**gency ï **I**stituto di **E**lettronica dello **S**tato **S**olido)
Duties Electromagnetic analysis, modeling, design and testing of MSW stop band filters, for microwave frequencies applications.

Seminars and Publications

Seminar presented at University of Illinois at Chicago, ECE Department on the subjet " High Q Whispering Gallery Modes High Resistivity Silicon Resonators for microwave frequencie applications", October 25, 2005, Chicago, USA.

ñMicromachined Tunable Dielectric Resonatorò, *Semiconductor Sensor and Actuator Technology, SeSens2002*, the Netherlands, November 2002.

ñWafer-level packaged RF-MEMS switches fabricated in a CMOS fabò, *International Electronic Device Meeting (I.E.D.M.)*, September 2001.

ñResonance Degeneration and Spurious Modes Suppression in a Cryogenic Whispering Mode Sapphire Resonatorò, *IEEE Microwave and Guided Wave Letters,* VOL. 10, N.9, September 2000.

ñDesign and Characterization of CPW Feedthroughs in Multi-Layer Thin-Film MCM-Dò, Proc. Radio and Wireless Conference RAW CON 2000, Denver, Colorado, 2000.

ñMicromachined Devices for Space Telecom Applicationsò, 3rd *Round Table on Micro/Nano – Technologies for Space*, ESTEC, Noordwijk, The Netherlands, May 15-17, 2000.

ñProgress Report on the Development of Microwave Spectral References at the LPMOò, *European Physical Journal AP* **8**, pp.269-274, 1999.

"Phase Noise Performances of Cryogenic Whispering Gallery Mode Resonator Frequency references", *12th European Frequency Time Forum* (E.F.T.F.), 10-12 March 1998, Warszawa, POLAND.

Seminar presented at the I.E.N. "Galileo Ferraris" on the subjet "Whispering Gallery Modes Sapphire Cryogenic Resonators for Metrological Applications", 14.10.1997, Torino, Italy.

"Mesure des caractéristiques diélectriques de materiaux entre 300K et 60K", *8th Congrès International de Métrologie*, 20-23 october 1997, Besançon, FRANCE.

"Conception d'oscillateur à très faible bruit de phase pour le Projet d'Horloge Atomique par Refroidissement d'Atomes en Orbite (PHARAO)", *10th Journées Nationales Microondes JNM 97*, 21-23/5/1997, Saint Malo.

"Résonateur saphir refroidi: Q_0=35 millions à 7 GHz", *10th Journées Nationales Microondes JNM 97*, 21-23/5/1997, Saint Malo, FRANCE.

"Effect of c-axis misalignement on sapphire disk resonator performances", *11th European Frequency Time Forum* (E.F.T.F.), 4-6 March 1997, Neuchâtel, SWITZERLAND.

"Résonateurs hyperfréquences à très haut coefficient de surtension", *6th Congrès Européen de Chronométrie* (CEC), Bienne, 17-18 October 1996.

"Mode selection for a whispering gallery mode resonator, *Electronics Letters - IEEE*, Vol. 32 N.7 - 1996.

"Mesure des propriétés diélectriques à basse température", *Journée de Caractérisation Microonde et Matériaux* (JCMM), Chambéry, Avril 1996.

"Electromagnetic and mechanical behaviours of Whispering Gallery Mode Resonators", *10th European Frequency Time Forum* (E.F.T.F.), Brighton, 5-7 March 1996.

"Developpement de sources microondes à très haute pureté spectrale au L.P.M.O.", *Journée Nationales Microondes* (J.N.M.), Paris, Avril 1995.

"Original Mode Selection for Whispering Gallery Mode Resonator", *9th European Frequency Time Forum* (E.F.T.F.), Besançon, 8-10 Mars 1995.

"Phase and frequency noise measurement system and design of frequency references", *8th Piezoelectric Conference*, Poland, Zakopane, 5-7 October 1994.

"Measurement of intrinsic properties of YIG films", *Meeting of the Gruppo Nazionale di Struttura della Materia*, at Pisa 28-30 October 1992.

"Non linear magnetostatic wave resonators for microwave applications", *LXXVIII Congress of the Società Italiana di Fisica*, at Pavia, 5-10 October 1992.

"Design and realization of planar magnetostatic wave resonators", *meeting of the Gruppo Nazionale di Struttura della Materia*, at Monteporzio (RM), October 1991.

"Planar magnetostatic wave resonators tunable between 2 GHz and 12 GHzò, *LXXVII Congress of the Società Italiana di Fisica*, at L'Aquila, 30 September-5 October 1991.

Referees

Prof. **Daniel Hauden**, Director of the ñLaboratoire de Physique et Métrologie des Oscillateursò (L.P.M.O.), C.N.R.S.
32, Av. de lôObservatoire, F25044 Besançon Cedex, France
tel.: +33.(0)3.81.40.28.01
e-mail: daniel.hauden@femto-st.fr

Dr. **Walter De Raedt**, Head of Design for analog and RF Technologies and Systems Group, Interuniversity MicroElectronics Center (I.M.E.C.)
Kapeldreef 75, B3001 Leuven, Belgium
Tel.: +32.(0)16.28.14.05
e-mail: deraedt@imec.be

Dr. **Daniele Petrillo**, Director of the Atena Study Center, Learning point of the University ñNiccolò Cusanoò
Viale Roma 56, 03100 Frosinone, Italy
Tel.:+39. 327.57.65.877
e-mail: daniele.petrillo@centrostudiatena-fr.it