



ELISA DUCA

CURRICULUM VITAE

PERSONAL

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E-mail: elisa.duca@gmail.com
Born on: October, 12, 1977
Born in: Marino (RM), Italia
Citizen: Italiana

SCHOLARSHIP

- 10/1991–07/1996 High School Liceo Ginnasio 'Augusto' in Rome. Final mark 57/60.
- 10/1996–07/2001 Bachelor in Telecommunication Engineering at the University of Rome 'Tor Vergata'. Final mark 110/110 cum laude.
- 10/2001–10/2002 Degree in Telecommunication Engineering at the University of Rome 'Tor Vergata'. Final mark 110/110 cum laude.
- 11/2002-10/2005 Ph.D. at the University of Rome 'Tor Vergata'. Thesis title: 'Optical Communication Systems in Networks and Satellite Links'.
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PREVIOUS WORKS

- 05/2003-05/2004 Collaboration with CNIT (Consorzio Nazionale Interuniversitario per le Telecomunicazioni) on a National interest project oriented to MANET networks and Ambient Intelligence.
- 2004-2005 Collaboration with Telecom Italia Learning Services on tutoring for specializing courses.
- 07/2005-09/2005 Collaboration with Dipartimento di Ingegneria Elettronica of the University of Rome 'Tor Vergata' dedicated to a study of developing optical links for space applications (LEO-GEO). This work was supported by SatNEx Network of Excellence.
- 09/2005-08/2006 Collaboration with Dipartimento di Ingegneria Elettronica of the University of Rome 'Tor Vergata' dedicated to continue the study of optical intersatellite links for space applications (HAP-LEO).
- 10/2006-09/2007 Filas contract, project i=RP2 "contracts for innovation" on 'Extended monitoring of infrastructures by optics fiber components'. this work led to the installation of a monitoring system on a rail trek near Rome (Pomezia- Santa Palomba station). This system allowed to start a measurement campaign, whose results will be used to refine the design of a monitoring system for strain and temperature control.
- 09/2006 Winner of a research position at the Italian Space Agency - Bando 35/2006 'Sistemi di Comunicazione a banda larga utilizzando satelliti, piattaforme stratosferiche e reti terrestri. Reti di telecomunicazione eterogenee con link ottici e a microonde. Analisi degli elementi di costo e simulazione complessiva di architetture di sistema e scenari operativi'.
- 02/2007-02/2008 Collaboration with Dipartimento di Ingegneria Elettronica of the University of Rome 'Tor Vergata', focused on the use of optical amplifiers (EDFA) in optical space links, evaluation of turbulence phenomena and impairments.

Dal 03/2008 Researcher at the Italian Space Agency (ASI).

ABROAD RESEARCH EXPERIENCES

Short missions to European research centers were carried out:

- TU Graz, Prof. Erich Leitgeb
 - DLR Munich, Ing. Dirk Giggenbach
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TEACHING EXPERIENCES

- Practical classes in the Optical Communications course at the University of Rome 'Tor Vergata'.
 - Lessons in 'Master in Sistemi avanzati di Comunicazione e Navigazione Satellitare', at the University of Rome 'Tor Vergata'.
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LANGUAGES

Fluent English, both written and spoken.

PROGRAMMING

Pascal, Fortran, C, C++, Java;

O.S.: Windows XP, 98, 2000, NT;

Word processing: Word, $\text{\LaTeX}2_{\epsilon}$;

Software: MatLab, Simulink, STK, Excel, PowerPoint, Adobe Illustrator.

PUBLICATIONS

International Journals

1. S. Betti, C. Bulli, F. Curti, E. Duca, S. Persia, A. Reale, G. M. Tosi Belleffi 'Optical Clock Recovery from 10 Gb/s NRZ Signal', *Microwave and*
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Optical Technology Letters Vol. 42, No.6, September 2004 pg 435-437 - Wiley

2. S. Betti, F. Curti, E. Duca, S. Monterosso, A. Reale, G.M. Tosi-Beleffi 'Optical Clock Recovery from 10 Gb/s NRZ Signal after propagation on 100 Km of DS, NZD or SR Installed fiber', *Microwave and Optical Technology Letters* Vol. 44, No.3, February 2005 pg.264-266 - Wiley
3. S. Betti, E. Duca 'SOA nonlinearity effects induced on constant envelope signals in WDM systems', submitted to IEEE-Journal of Lightwave Technology

International Conferences

1. S. Betti, V. Carrozzo, E. Duca, A.B. Lopez Zamarrero 'Performance analysis of 1550nm optical intersatellite link', *European Workshop on Photonic Signal Processing for Defence Applications* in the Frame of NE-FERTITI -Network of Excellence on Broadband Fiber Radio Techniques and its Integration Technologies, Rome March 17th – 18th, 2005
2. S. Betti, V. Carrozzo, E. Duca 'Optical Intersatellite System based on DPSK modulation', IEEE IWSSC 2005 Proceedings pg. 817-821
3. M.Antonini, S.Betti, V. Carrozzo, E. Duca, M. Ruggieri 'Feasibility analysis of a HAP-LEO optical link for data relay purposes', IEEE Aerospace Conference 2006
4. B. Flecker, E. Leitgeb, M. Gebhart, S. Sheikh Muhammad, C. Chlestil, E. Duca, V. Carrozzo 'Measurement of Light attenuation in fog and snow conditions for FSO applications', 15th IST Mobile & Wireless communications Summit.
5. M.Antonini, S. Betti, V. Carrozzo, E. Cianca, E. Duca, M. Lucente, M. Ruggieri, T. Rossi 'RF-optical architecture for GEOSS based on the use of HAPs' ICT 2006 - 13th International Conference on Telecommunications 9-12 May 2006 (Funchal, Madeira island, Portugal)
6. S. Betti, V. Carrozzo, E. Duca, F. Teodori 'HAP-LEO link communication systems based on Optical Technology' TIWDC-06 Tyrrhenian International Workshop on Digital Communications - Satellite Navigation and Communications Systems - 6-8 September 2006 - Ponza - Italy

7. E. Duca, V. Carrozzo, C. Roseti, 'Performance Evaluation of a Hybrid Satellite Network Based on High-Altitude-Platforms' IEEE Aeroconf 07.
8. S. Betti, V. Carrozzo, E. Duca 'Over-stratospheric-altitude optical free space links: system performance evaluation' ICTON 07
9. S. Betti, E. Duca, V. Carrozzo 'Use of optical amplifiers in GEO-HAP free space links', IWSSC 07
10. S. Betti, V. Carrozzo, E. Duca, G. Parca 'Radio-over-Fiber (RoF) Techniques for Broadband Wireless LAN (WLAN)', ICTON 07
11. E. Duca, S. Di Bartolo, D.M. Forin, S. Betti, A.L.J. Teixeira 'Modulation Effect Induced by Continuous Waves in Semiconductor Optical Amplifiers', ICTON 2008, Athens 22-26 June 2008
12. S. Betti, E. Duca, I. Toselli 'HAP-GEO optical links:system design and performance analysis under weak turbulence conditions', CSNDSP 08, Graz 23-26 July 2008
13. N. Perlot, E. Duca, J. Horwath, D. Giggenbach, E. Leitgeb ' System requirements for optical HAP-Satellite links', CSNDSP 08, Graz 23-26 July 2008

Italian Conferences

1. S. Betti, R. De Boni, E. Duca, M. Giaconi, A. Reale, 'Tecnica per il recupero della sincronizzazione mediante filtraggio ottico diretto: sistema RZ a 5 Gb/sec', FOTONICA 2003-ATTI pg. 427-430
2. S. Betti, V. Carrozzo, E. Duca 'Demultiplicatore OTDM basato su anello in fibra ottica in regime di non linearità: analisi delle prestazioni', *FOTONICA 2005, ATTI pg 325-328*
3. S. Betti, V. Carrozzo, E. Duca, 'Impiego degli amplificatori ottici (EDFA) in collegamenti ottici spaziali' FOTONICA 2007.
4. S. Betti, V. Carrozzo, E. Duca, 'Analisi delle prestazioni di collegamenti ottici intersatellitari' FOTONICA 2007.
5. S. Betti, E. Duca 'Interferenza non lineare indotta da amplificatori SOA in sistemi ottici WDM' FOTONICA 2007.

PhD Thesis

- E. Duca 'Optical Communication Systems in Networks and Satellite Links'
PhD Thesis -XVIII- Cycle University of Rome Tor Vergata. March 2006.