

## GIAMPIERO NALETTO

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Date of birth: 21 June 1962  
 Army mandatory service: 24 July 1984 – 15 July 1985  
 Married with two children  
 Spoken languages: Italian (native) and English

### EDUCATION

- 1991      Optics Specialization at the National Institute of Optics at the Florence University  
 Specialization theses (in italian): *Monocromatori a larga banda nell'estremo ultravioletto per l'utilizzo della radiazione di sincrotrone*
- 1988      “Laurea” in Physics at the University of Padova. Graduation theses (in italian):  
*Strumentazione spettroscopica nell'estremo ultravioletto per applicazioni spaziali*

### PRIMARY ACADEMIC APPOINTMENTS

- 2006-present      Associate Professor in Experimental Physics at the Department of Information Engineering, University of Padova
- 1994-2006      University Researcher in Matter Physics at the Department of Information Engineering, University of Padova

### OTHER APPOINTMENTS

- 1996-1997      Assistant Development Engineer at the Space Science Laboratory, University of California, Berkeley (CA, USA)
- 1996      Member of the UVCS/SOHO team at the Experiment Operation Facility of the NASA Goddard Space Flight Center (Greenbelt, MD, USA)

### AWARDS AND FELLOWSHIPS

- 1991-1993      Research collaborations with INFN (presently CNR/INFN, Italian National Council for Research / National Institute for Matter Physics) for developing optical instrumentation for space and synchrotron radiation applications
- 1990-1991      Fellowship (renewal) with Consorzio INFN (presently CNR/INFN, Italian National Council for Research / National Institute for Matter Physics) for *Development of monochromators for synchrotron radiation sources*
- 1989-1990      Fellowship (public exam, first classified) with Consorzio INFN (presently CNR/INFN, Italian National Council for Research / National Institute for Matter Physics) for *Development of monochromators for synchrotron radiation sources*
- 1988-1989      Fellowship with Officine Galileo (presently Selex Galileo, Campi Bisenzio, FI) for the *Study of the optical configuration of the ultraviolet spectrograph of the UVCS/SOHO space instrument*

## MAIN RESEARCH ACTIVITIES

Study, development and realization of innovative optical and spectroscopic instrumentation for space applications in the spectral range from the extreme ultraviolet to the visible.

Study, development and realization of innovative optical instrumentation for ground astronomy applications.

Study, development and realization of innovative optical instrumentation for ophthalmic applications.

Study, development and realization of innovative optical and spectroscopic instrumentation for synchrotron radiation applications.

## GRANTS AND CONTRACTS

- 2011-2012 *Ultrafast photon counting instrumentation for astronomical applications* (University grant). PI.
- 2011 *Setup for stereo validation of STC* (Selex Galileo, research contract). PI.
- 2010-2012 *BepiColombo* (ASI/INAF contract). Responsible of WP1140 STC Calibration.
- 2010-2011 *METIS* (ASI/INAF contract). Responsible of WP1140 Spectrometer design, multilayers, detectors.
- 2009-2011 *Sun and Plasma data analysis ADII Phase* (ASI/INAF contract). Participation (Responsible Prof. P. Nicolosi) to *WP2300 UVCS calibration*
- 2009-2010 *Toward a new generation of formation flying solar coronagraph StarTiger* (ESA contract). Local Responsible (PI S. Vives, LAM, Marseille, F)
- 2008-2011 *WAC/Rosetta Phase E2* (ASI/INAF contract). Responsible of WP3200 Operations and flight calibrations
- 2008 *Support activity to the optical design of the STC instrument of Simbio-sys* (Selex Galileo, research contract). PI
- 2007-2009 *Studies for the exploration of the Solar System* (ASI/INAF contract). Responsible of Sub-Task 02310 Feasibility studies and prototype developments for observing solar wind and corona
- 2007-2009 *Quantum Properties of Light and Astronomy* (Fondazione Cariparo Excellence Projects 2006). Participation (PI: Prof. C. Barbieri)
- 2007-2009 *Astrophysics to quantum limits* (PRIN 2006). Participation (PI: Prof. C. Barbieri)
- 2007-2008 *BepiColombo* (ASI/INAF contract). Responsible of WP5440 STC Calibration
- 2007 *Study and optical design of the Orion ophthalmic instrument* (Nidek Technologies, research contract). PI
- 2007 *Study of "wrapping" lenses* (Visual Lenti, research contract). Participation (PI: PhD V. Da Deppo)
- 2006 *AquEYE* (University contract). Participation (PI: Prof. C. Barbieri)
- 2006 *QuantEYE* (ESO contract). Participation (PI: Prof. C. Barbieri)
- 2005-2007 *WAC/Rosetta* (ASI/INAF contract). Participation (PI: Prof. C. Barbieri)
- 2005-2007 *Sun and Plasma data analysis ADII Phase* (ASI/INAF contract). Participation (PI Prof. P. Nicolosi) to *WP2300 UVCS calibration*
- 2005 *Analysis and alignment procedure definition for the ophthalmic instrument ConfoScan Cs4* (Nidek Technologies, research contract). PI
- 2004 *WAC/OSIRIS calibration* (Astrium contract). Participation. (PI: Prof. C. Barbieri)
- 2003-2006 *Design and realization of an adaptive optics fundus camera* (University Project F.S.2.11.03.07). PI
- 2001-2002 *Study of UVISS* (ASI contract). Participation (PI: Prof. P. Bernacca)
- 2001-2002 *Study and/or design of optical systems for applications in ophthalmic diagnostics* (Nidek Technologies, research contract). PI
- 1998-2003 *WAC/Rosetta* (ASI/INAF contracts). Participation (PI: Prof. C. Barbieri)

## **MAIN NATIONAL [NC] AND INTERNATIONAL COLLABORATIONS [IC]**

- 2009-present *Participation to the University “Strategic Project” Quantum Future [NC]*
- 2009-present *Co-Investigator for the ASPIICS instrument for the Proba 3 ESA mission [IC]*
- 2009-2010 *Participation to the Startiger project funded by ESA Toward a new generation of formation flying solar coronagraph [IC]*
- 2008-present *Experiment Manager of the METIS (Multi Element Telescope for Imaging and Spectroscopy) instrument, part of the ESA Solar Orbiter mission [IC]*
- 2007-present *Responsible of the optical design of IquEYE, an ultrafast photometer for the NTT in La Silla (Chile) [IC]*
- 2007-present *Participation to the Department “Strategic Project” Quintet [NC]*
- 2007-2010 *Responsible of Sub-Task 02310 Feasibility studies and prototyping for observing solar wind and corona (ASI/INAF contract on “Studies for the Solar System Exploration”) [NC]*
- 2007-2010 *Participation to Sub-Task 03440 Observations of Moon and Mercury (ASI/INAF contract on “Studies for the Solar System Exploration”) [NC]*
- 2007-2009 *Responsible of optical design in the Astronomy to the quantum limit project (Fondazione Cariparo Excellence Projects 2006) to realize IquEYE, an ultrafast photometer to be applied to the NTT (Chile) telescope [IC]*
- 2007-2008 *Responsible of optical design in the Astronomy to the quantum limit project (PRIN 2006) [NC]*
- 2006-2007 *Responsible of optical design in the realization of AquEYE, an ultrafast photometer to be applied to the Cima Ekar (Asiago, Italy) telescope [NC]*
- 2006-2007 *Co-Investigator of the ASPIICS instrument (scientific payload for observing the solar corona proposed for the ESA satellite formation technological mission Proba III) [IC]*
- 2005-2006 *Responsible of optical design in the QuantEYE proposal, an ultrafast photometer to be applied to the focal plane of the OWL telescope [IC]*
- 2004-2005 *Responsible of optical design of the DaΦne beamline at the Frascati synchrotron ring [NC]*
- 2003-present *Co-Investigator (STC Technical manager) of the STC/SIMBIOSYS stereo camera for the BepiColombo ESA mission to Mercury [IC]*
- 2003-present *Co-Investigator of the UV spectrograph Phebus for the BepiColombo ESA mission to Mercury [IC]*
- 2002-2003 *Co-Investigator (responsible of the Integration & Test activities) of the SPECTRE/SHARPP instrument for the NASA SDO mission (activity concluded at the end of the A Phase) [IC]*
- 2000-2002 *Responsible of the Integration & Alignment activities of the BEAR beamline at the Elettra synchrotron ring in Trieste [NC]*
- 1998-present *Co-Investigator (responsible of the WAC optical design and calibration activities) of the OSIRIS instrument on board the ESA Rosetta mission for the observation of the 67 P/Churyumov- Gerasimenko comet [IC]*
- 1998-2002 *Co-Investigator (Spectrograph Scientist and Unit Responsible) of the UVISS proposal (UV Italian telescope proposed for installation on the ISS) [NC]*
- 1996-1997 *Assistant Development Engineer for the realization of the FUSE (NASA mission) detector [IC]*
- 1990-1994 *Responsible of optical design of the ALOISA beamline at the Elettra synchrotron ring in Trieste [NC]*
- 1988-present *Responsible of optical design of the UVCS spectroscopic channels on board the SOHO ESA/NASA satellite [IC]*

## **MEMBERSHIPS**

- 2009-present Association to the Institute of Photonics and Nanotechnologies (IFN) of National Council of Research (CNR)

- 2005-present Association to the Italian National Institute of Astrophysics (INAF)  
 2005-2009 Association to the CNR/INFM (Italian National Council of Research / National Institute of Matter Physics)  
 2001-2009 Senior Investigator of the Regional CNR/INFM laboratory LUXOR  
 1995-present Member of the Society of Photo-Optical Instrumentation Engineers S.P.I.E. (Bellingham, WA, USA)  
 1989-2005 Association to the Italian National Institute of Matter Physics (INFM)

### INTERNATIONAL CONFERENCES

- 2005 Member of the Program Committee of the *Optical Engineering and Instrumentation* Conference at the SPIE Annual Meeting 2005  
 2003 Member of the Program Committee of the *Telescopes and Instrumentation for Solar Astrophysics* Conference at the SPIE Annual Meeting 2003. Chair of conference sessions  
 2002 Member of the Program Committee of the *Future EUV-UV and Visible Space Astrophysics Missions and Instrumentation* Conference (part of the *Astronomical Telescopes and Instrumentation* Conference). Chair of conference sessions  
 2001 Member of the Program Committee of the *UV/EUV and Visible Space Instrumentation for Astronomy and Solar Physics* Conference of the SPIE Annual Meeting 2001. Chair of conference sessions  
 2000 Member of the Program Committee of the *Instrumentation for UV/EUV Astronomy and Solar Missions* Conference of the 45<sup>th</sup> SPIE Annual Meeting. Chair of conference sessions

### REVIEWER

Reviewer of international scientific journals, as Applied Optics, Optical Engineering, Optics Letters, IEEE, Optics Express, Journal of Modern Optics, Experimental Astronomy.

### UNDERGRADUATE TEACHING (ENGINEERING FACULTY)

- 2007-present Professor of *Physics 1* course  
 2007-2010 Professor of *Space Optics Instrumentation* course  
 2002-2006 Contract Professor of *Physics 1*, *Physics 2* and *Space Optics Instrumentation* courses  
 2001 Contract Professor of *Physics 1* and *Physics 2* and Assistant Professor of *General Physics 2* courses  
 1998-2000 Contract Professor of *General Physics 1* and Assistant Professor of *General Physics 2* courses  
 1992-1995 Assistant Professor of *General Physics 2* course

### UNDERGRADUATE TEACHING EVALUATION

Evaluation of the didactical activity given by the students (average satisfaction: 1 to 10 score) and relative classification with respect to all the other Engineering Faculty courses.

- 2009-2010 *Physics 1* (1<sup>st</sup> year): Score 7.71; Classification 221 out of 663  
*Space Optics Instrumentation* (3<sup>rd</sup> year): Score 8.40; Classification 80 out of 663  
 2008-2009 *Physics 1* (1<sup>st</sup> year): Score 6.23; Classification 456 out of 610 (GN was responsible only of the second half of the course)  
*Space Optics Instrumentation* (3<sup>rd</sup> year): Evaluation not performed  
 2007-2008 *Physics 1* (1<sup>st</sup> year): Score 7.24; Classification 338 out of 698  
*Space Optics Instrumentation* (3<sup>rd</sup> year): Score 8.29; Classification 72 out of 698  
 2006-2007 *Physics 1* (1<sup>st</sup> year): Score 7.94; Classification 135 out of 662  
*Space Optics Instrumentation* (3<sup>rd</sup> year): Score 9.08; Classification 3 out of 622  
 2005-2006 *Physics 1* (1<sup>st</sup> year): Score 7.19; Classification 237 out of 560  
*Physics 2* (1<sup>st</sup> year): Score 7.02; Classification 275 out of 560  
*Space Optics Instrumentation* (3<sup>rd</sup> year): Score 7.50; Classification 189 out of 560

2004-2005	<i>Physics 1</i> (1 <sup>st</sup> year): Score 7.35; Classification 182 out of 469 <i>Physics 2</i> (1 <sup>st</sup> year): Score 7.50; Classification 157 out of 469
2003-2004	<i>Physics 1</i> (1 <sup>st</sup> year): Score 6.88; Classification 319 out of 502 <i>Physics 2</i> (1 <sup>st</sup> year): Score 7.10; Classification 278 out of 502
2002-2003	<i>Physics 1</i> (1 <sup>st</sup> year): Score 6.32; Classification 348 out of 438 <i>Physics 2</i> (1 <sup>st</sup> year): Score 7.15; Classification 225 out of 438

## POSTGRADUATE TEACHING

2010	<i>Optics 1</i> course (Vision Science and Technology Master School) <i>Elements of Optics and Interferometry</i> lectures (Space Science, Technology and Measurement PhD School)
2009	<i>Optics 1</i> course (Applied Optics Master School)
2005-2009	<i>Elements of Optics</i> lectures (Space Science, Technology and Measurement PhD School)
2004-2007	<i>Optics 1</i> course (Applied Optics Master School)
2004	<i>Space Optics Instrumentation</i> course (Astronautics and Satellite Science Master School)
2003	<i>Optics 1</i> , <i>Space Optics</i> , and <i>Laboratory of Optics 2</i> courses (Applied Optics Master School) <i>Applied Optics</i> lectures (Electronics and Telecommunication PhD School)

## GRADUATION THESES SUPERVISOR

P = Physics, AE = Aerospace Engineering, IE = Information Engineering, EE = Electronics Engineering, TE = Telecommunication Engineering

2010	Fabio Ceruffi (AE, 2 <sup>nd</sup> level graduation) Giacomo Codogno (IE, 2 <sup>nd</sup> level graduation) Daniele Borean (AE, 1 <sup>st</sup> level graduation)
2009	Marco Chiaradia (AE, 1 <sup>st</sup> level graduation) Giulio Pinzan (AE, 1 <sup>st</sup> level graduation) Salvatore Ciacco (AE, 1 <sup>st</sup> level graduation)
2008	Samuele Feltrin (TE, 1 <sup>st</sup> level graduation) Luca Brigo (AE, 1 <sup>st</sup> level graduation) Livia Savioli (AE, 1 <sup>st</sup> level graduation)
2007	Alberto Zambelli (TE) Robert Yates (Erasmus student) Giacomo Codogno (IE, 1 <sup>st</sup> level graduation) Nicola Zanella (AE, 1 <sup>st</sup> level graduation)
2006	Fabio Cian (AE, 1 <sup>st</sup> level graduation) Gianluca Bertoldi (AE, 1 <sup>st</sup> level graduation) Enrico Cecchinato (EE) Gabriele Mosca (AE, 1 <sup>st</sup> level graduation) Andrea Spazian (AE, 1 <sup>st</sup> level graduation) Alberto Voltolina (AE, 1 <sup>st</sup> level graduation) Michele Gasparini (EE) Franco Bosi (AE, 1 <sup>st</sup> level graduation) Enrico Verroi (P)
2005	Nicola Codogno (EE) Fabio Toniolo (AE, 1 <sup>st</sup> level graduation) Francesca Cucciarrè (AE, 1 <sup>st</sup> level graduation)
2004	Diego Mastrotto (EE, Diploma)
2002	Fabio Frassetto (P)
2000	Massimo Badanai (EE) Matteo Zattarin (TE)
1999	Cinzia Burigana (TE) Walter Barbirato (TE)
1998	Alessandro Zuccaro (P) Vania Da Deppo (P)

1995 Maria-Guglielmina Pelizzo (P)  
Antonio Tarzariol (EE)  
Andrea Voltolina (EE)

#### MASTER SUPERVISOR

2009 Filippo Ratti  
2007 Emma Scanu  
Luigi Casatta  
2004 Massimo Ragazzon

#### PH.D. SUPERVISOR

2011 Cristina Re  
Gerlin Francesca  
2009-present Lorenzo Cocola  
Serena Gradari (Co-supervisor)  
Andrea Tomaello  
2008-2009 Patrizia Borin (as PhD School Branch Coordinator)  
Michele Suman (as PhD School Branch Coordinator)  
Lorenzo Trenchi (as PhD School Branch Coordinator)  
2007-2010 Emanuele Simioni  
2005-2007 Alice Dalla Stella (retired)  
2002-2005 Fabio Frassetto *Strumentazione ottica per la coronografia solare da satellite*  
1999-2002 Vania Da Deppo *Analisi delle prestazioni ottiche della Wide Angle Camera per la missione spaziale Rosetta*

#### ACADEMIC COMMITTEES AND ASSIGNMENTS

2010 Director of the Space Science, Technology and Measurements PhD School  
2010 Member of the Evaluation Committee for the Department “Strategic Projects”  
2010 Organization of the didactical activities of the Vision Science and Technology Master School  
2010 Member of the Vision Science and Technology Master School Assignment Committee  
2009 Organization of the didactical activities of the Applied Optics Master School  
2009 Member of the Applied Optics Master School Assignment Committee  
2008-present Member of the Scientific Committee of the Interdepartmental Center for Studies on Space Activities (CISAS) of the Padova University  
2008-present Coordinator of the *Astronomy and Satellite Science* branch of the *Space Science, Technology and Measurements* PhD School  
2008 Member of the Committee for the definition of the Department of Information Engineering spin-off regulations  
2007-present Member of the Department Research Committee  
2007-2008 Member of the Committee for the Classification of the “Strategic Projects” of the Information Engineering Department  
2007 Member of the Department Post PhD Assignment Committee.  
2006-present Member of Fellowship and Post PhD Assignment Committees  
2005-present Member of the Department Steering Committee  
2005 Member of the Space Science, Technology and Measurements PhD School Assignment Committee  
2004-2010 Vice director of the Space Science, Technology and Measurements PhD School  
2003-2007 Organization of the didactical activities of the Applied Optics Master School  
2003-2007 Member of the Applied Optics Master Assignment Committee  
2003 Member of a Matter Physics University Researcher Assignment Committee (Engineering Faculty, Milan “Politecnico”)  
2002 Member of the Space Science, Technology and Measurements PhD School Assignment Committee

- 2001-2005 Member of the University Scientific Committee (Information sector) and of the Didactical Committee for the Department laboratories management
- 2001 Member of a Matter Physics University Researcher Assignment Committee (Engineering Faculty, University of Pavia)
- 2000 Member of the Didactical Committee of Electrical Engineering for the actuation of the new graduation curricula (first and second level graduation)
- 1999-present Member of Didactical Committee of the Space Science, Technology and Measurements PhD School
- 1994-present Member of the Interdepartmental Center for Studies on Space Activities (CISAS) of the Padova University

## **PUBLIC OUTREACH**

- 2010 Conference on *Osservazioni astronomiche da satellite: cosa è cambiato dal 1940 al 2010* for the last year secondary school (Liceo Scientifico G. Galilei, Verona) students
- 2010 “Invited speaker” on *Review dello Hubble Space Telescope* for the last year students of the Telecommunication Engineer course
- 2008 “Invited speaker” on *L’ottica adattiva e le sue possibili applicazioni all’oftalmologia* for the seminar cycle *Dagli OCT spectral domain alle ottiche adattive* for the Ophthalmology specialization School of the Padova University
- 2007 Invited speaker on *Una visione d’insieme dell’ottica adattiva* at the *La nuova frontiera per un'altra qualità della visione: fronte d'onda e aberrazioni ottiche* Workshop (XI Italian Optometrist Interdisciplinary Congress)
- 2005 Organization of the cultural activities in Padova about the *Space and ground observation of the Universe: how a satellite instrument is built, what are the main space observatory, discussion on the most recent results obtained by astronomical and Earth observation* in the framework of the XV Scientific and technological week of culture (14-20 March 2005)  
Conference at the Department of Information Engineering about *The Universe seen from the space* (in the framework of the XV Scientific and technological week of culture)
- 2004 Conference cycle for the last year secondary school (Liceo Scientifico G. Galilei, Verona) students: *Con la testa per aria (i telescopi terrestri)... and ...Ma senza i piedi per terra (l’Universo visto dallo spazio)*
- 2003 Invited speaker on *The Ultraviolet and Visible-light Coronagraph Imager (UVCI) for the Helium Resonance Scattering in the Corona and Heliosphere (HERSCHEL) Program* at the Workshop “New Prospects for Space Observations of the Dynamics of the Sun”, International School of Space Science L’Aquila, 1-6 September
- 2002 Conference for the last year secondary school (Liceo Scientifico L. Da Vinci, Treviso) students: *Lo scienziato e la scienza*

## **PUBLICATIONS**

Co-author of more than 160 publications on international Journals and Conference Proceedings.

## **PATENTS**

Italian Patent N. 01253644-1991 *Monocromatore a deviazione variabile*

## **AWARDS**

- 2003 Award of the International Academy of Astronautics to the SOHO team “to recognize extraordinary performance and achievement by a team of scientists, engineers and managers in the field of Astronautics”
- 1995 NASA Award as member of the UVCS/SOHO Refurbishment Team.