

Curriculum Vitae: Alberto Bigazzi

Personal Data:

<i>Title:</i>	PhD
<i>Born:</i>	Milano (IT), 1968
<i>Nationality:</i>	Italian
<i>Marital status:</i>	Married
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AREAS OF INTEREST:

Ground Segments and Operations. Earth Observation and Science Missions. Remote sensing (Radar, Optical). Optical instrumentation. Navigation and GNSS systems, Mission concept and design. Solar and Space Physics.

SPECIALITIES

System Engineering: Requirements Engineering; Qualification (Verification and Validation) Engineering. Instrument Calibration and Validation. AIT/AIV Engineering. Project Management. Quality(ECSS, ISO-9000); SW Quality Assurance.

PROFILE

Consultant in the Space Sector, bringing over 15 years of experience in Space Industry and in Science. My competences are rooted in Ground Segment System Engineering, Instrument Performance Analysis, Mission Design, AIT/AIV Engineering, Software Quality Assurance, Software Engineering, Program Management. I have been associate to the COSPAR and to the National Italian Institute for Astrophysics (INAF) for several terms.

EDUCATION

- **PhD, Physics** (Astrophysics), 1996 – 1999, University of l'Aquila (IT) [Resident Postgraduate student at the University of Newcastle-upon-Tyne (UK), 1996-1998]
- **Laurea Degree** , Physics, with full grades, 1995, University of Rome "La Sapienza" (IT)
- **Master's Degree** (Eng), Satellite Communications and Navigation, 2005 – 2006, University of Roma "Tor Vergata" (IT)

WORK EXPERIENCE

- Date: June 2014 – Present

Service Coordinator, Sensor Performance evaluation, Product & Algorithms Maintenance & Operations of the Earth Observation Payload Data System – ESA/ESRIN Frame Contract.
Responsible for the Payload Data Processor & QC Tools Maintenance & Evolution task.

- Date: Apr 2014- Present

Project Manager, ESA/ERSIN Scatterometer Competence Center Contract (SCIRoCCo)

- Date: Sep 2013-Present

Project Manager, ESA SEOM-IAS Improved Atmospheric Spectroscopic Database contract

- Date: May 2014-Present

Supervisor, Master's student: The Aeolus Aladin Instrument End-to-End Simulator

- Date: March 2009 – Present

GOCE Payload Data Ground Segment System Engineer, ESA/ESRIN.

GOCE Payload Data Ground Segment System Engineer

GOCE Instruments performance monitoring. Cal/Val Team member.

Management of data releases and support to the User Community.

Long-Term Data preservation.

During In-Orbit testing: instrument processors validation, Payload Calibration and Validation.

- Date: February-December 2011

Co-Investigator, NASA/SAFARI Mission proposal (Solar/Space Physics).

- Date: Jan 2012 – Dec 2012

SWARM Ground Segment Instrument Performance Engineer, ESA/ESRIN.

Support to the development of the Quality Control Function for the SWARM Ground Segment.

Date: September 2007 - March 2009 (1 year 7 months)

System Team Leader and Co-Investigator. ADAHELI solar Mission (ASI. Prime contractor OHB-Carlo Gavazzi Space)

Mission Concept. Proposal and bid management.

Mission Requirements and Operational Scenarios definition.

Mission design and analysis. Review of Mission and Payload technical Documentation.

Ground Segment: Requirements definition, Design and Development Plan. User Segment

Requirements. Preliminary Architectural Design. User Segment procurement.

Adaheli is a Solar Mission carrying an IR solar telescope for chromospheric dynamics, a MOF-based instrument for helioseismology and a radiometer for flare detection and particle acceleration, for Space-Weather.

Date: May 2006 - September 2008 (2 years 5 months)

Verification and Validation Engineer – Quality Assurance engineer at Thales Alenia Space, Italia (Contractor for Altran Italia).

- Sentinel-1 (ESA) Phase B2 Support to the PA Manager.
- COSMO-SkyMed (ASI); Radar Constellation for Earth Observation. Phases D and E. Verification and Validation Engineer. Responsible for the end-to-end System Operations and Validation Testing campaign. Performance Verification. Cal/Val activities.
- SABRINA (ASI); Interferometric radar formation flying Mission. Phase A. Design and Development Plan; Verification and Validation Plan.
- MIOSAT (ASI); Microsatellite Platform for Earth Observation. Phase A: Requirements engineering.
- Study (submitted to ESA/ILEWG) for an optical Payload on NASA's Precursor Missions to the Moon.

Feb 2006 - Giu 2006

Software Engineer - NASA/Swift Mission at Dataspazio (Finmeccanica Group)

ASI Science Data Center, ESA-ESRIN

Development/maintenance of the XRT instrument's processing pipeline. Integration with NASA HEASARC payload data processing suite.

Program: Sicral 1B (IT DEFENSE, TLC). System Engineer. Verification and Validation procedures for the Satellite Control Center (SCOS2000).

Feb 2005 - Gen 2006 (1 year 3 months)

Quality Engineer, Telespazio. COSMO-SkyMed Radar Constellation (ASI).

Responsible, Ground Segment's Dependability and Safety analyses (RAMS).

Quality Assurance Engineer (ISO-9001, ECSS and NATO AQAP 160/2100 Standards).

-Responsible, Code Inspections on Ground Segment's components.

-Configuration Control: definition of procedures for Software Problem Reporting. Development of related Software Tools.

Programme: "MARISS" (ESA/GMES - for Maritime Security). Quality Assurance Manager. Configuration Manager.

R&D Project: Algorithms for error detection in GPS signals.

Nov 2003 - Jan 2005 (1 year 3 months)

University of Porto (PT). Researcher.

Analysis of Solar Wind data from the ESA/NASA Ulysses mission. Solar wind. Interplanetary medium. MHD turbulence in the Solar Wind.

Oct 2001 – Oct 2003 (2 years)

NASA/JPL. Research Scientist.

Solar and planetary magnetism. Solar magnetism. Solar Dynamo. Solar Wind and interplanetary magnetic fields.

- February 1999 - October 2001 (2 years 9 months)

Politecnico di Milano (IT). Research Associate and Lecturer

Thermo-fluid dynamics and Combustion. CFD, fast combustion processes. Sub-grid scales modelling. Turbulence.

Lecturer in Rational Mechanics, (60 hours courses).

Honours, Awards, Associations.

ESA Award for Corporate Team Achievements (2014)

ESA Award for Corporate Team Achievements (2010) as member of the GOCE Team.

ESA Certificate of Appreciation (2009) in recognition of the contribution to the GOCE Mission

National Research Council (USA) fellow, 2011-2003

INAF Associate (National Institute for Astrophysics), since 2006
COSPAR Associate (Committee for Space Research), since 2001
Member of the Caltech Alumni Association.

Co-I in NASA's SAFARI Mission (2011)
Co-I on ASI's solar Mission ADAHELI (2007-2009)

SKILLS

- Management Skills:

Proposal management; Space Quality Standards for Space Programs and Software Development: ESA ECSS Standards for Space Products, Military NATO AQAP Standards 2110 for design, development and production. Military NATO AQAP Standards 160 for the Software life cycle. ISO9001:2000 family standards.

- Communication and interpersonal Skills:

Strong communication skills, acquired during many years spent within international Science and Industrial communities. Teaching and public outreach.

- Technical skills

Numerical coding and statistical data analysis. Signal and image processing. Computer programming in Fortran, C, under Unix, Windows. Scripting (Perl, BASH, etc). Databases (MySQL, MS Access). Computational Fluid Dynamics (CFD and MHD). Specific knowledge on Solar and Space Physics, nonlinear dynamics and complex systems.

- Software Packages:

IDL, Interactive Data Language. Data analysis and Image Processing Package (personal license). STK Satellite Toolkit for Mission Planning. MATLAB, Scilab. IBM-DX Data Explorer. NASA Heasarc libraries for satellite instrument data handling.

TEACHING

Since 2011: Lecturer, Master's Degree in Space Science and Technology, University of Tor Vergata, Rome.

2007-2010: Lecturer (8-hrs modules), Master's Degree in Satellite Communications and Navigation University of Rome "Tor Vergata".

1999-2000 Lecturer in Analytical Mechanics (60 hrs.), Politecnico di Milano

1998-1999 Lecturer in Analytical Mechanics (60 hrs.), Politecnico di Milano

LANGUAGES

Mother tongue: Italian English: fluent, both in writing and speaking.

French: good understanding. Fair speaking.

Portuguese: good understanding. Fair speaking.

German: Basic Course achieved.

Selected PUBLICATIONS

A. Zin, S. Zago, L. Scaciga, L. Marra, R. Floberghagen, M. Fehringer, A. Bigazzi, A. Piccolo, L. Luini (2014) GOCE SSTI GNSS Receiver re-entry phase analysis. NAVITEC 2014 conference (submitted)

Gostinicchi, G., Bigazzi, A., Casadio, S., Fedeli, E., Martini, A., Niro, F. (2014) The AEOLUS End-to-End Simulator, The Aeolus Science & Cal/Val Workshop (submitted)

Meloni, M.; Bigazzi, A.; Mizzi, L.; Frommknecht, B.; Floberghagen, R. (2014) GOCE de-orbiting: Analysis of Level 1b data products. EGU General Assembly 2014, held 27 April - 2 May, 2014 in Vienna, Austria

Frommknecht, B.; Bigazzi, A.; Mizzi, L.; Meloni, M.; Floberghagen, R. (2014) GOCE PDGS: L1b and L2 data processing status and outlook. EGU General Assembly 2014, held 27 April - 2 May, 2014 in Vienna, Austria, id.7913

Bigazzi, A.; Frommknecht, B.; Meloni, M.; Mizzi, L.; Floberghagen, R. GOCE data for Earth sciences and applications. Availability of new products and nominal Mission data. American Geophysical Union, Fall Meeting 2013, abstract #G51A-0879

- Frommknecht, B.; Lamarre, D.; Meloni, M.; Bigazzi, A.; Floberghagen, R. (2011), GOCE level 1b data processing *Journal of Geodesy*, vol. 85, issue 11, pp. 759-775

- Bigazzi, A. et al. 2010 The ADAHELI Solar Mission. Investigating the structure of Sun's lower atmosphere, (2010) *Advances in Space Research*, Volume 45, Issue 10, p. 1191-1202.

- P.F. Moretti • F. Berrilli • A. Bigazzi • S. M. Jefferies • N. Murphy • M. Velli • L. Roselli • M.P. di Mauro, 2009, Future instrumentation for solar physics: a Double Channel MOF Imager on board ASI Space Mission ADAHELI, 2010 *Astroph. and Space Sci.*, 328, Issue 1-2, pp. 313-318

- Moretti, P.F.; Berrilli, F.; Jefferies, S. M.; Murphy, N.; Velli, M.; Roselli, L.; Di Mauro, M.P.; Bigazzi, A., 2009 A Double Channel MOF Imager to Study Low and Medium Oscillating Modes on-board ADAHELI *Proceedings, HELAS Workshop 'Synergies between solar and stellar modelling' Rome, 22-26 June 2009, Astrophysical and Space Sciences*, Springer.

- Alimenti, F., Palazzari, V., Battistini, A., University of Perugia, Roselli, L., White, S., Velli, M., Bigazzi, A., University of Rome "Tor Vergata", Berrilli, F., 2009, MIOS: the ADAHELI Millimetre-wave Instrument for the Observation of the Sun, 5th ESA Workshop on Millimetre Wave Technology and Applications. 18 - 20 May 2009 ESTEC, Noordwijk (NL).

- C. De Santis, B. Viticchiè, F. Berrilli, A. Bigazzi, et al., 2009, A new debris detection algorithm for orbiting solar telescopes, 1st ESA/IAA Planetary Defense Conference: Protecting Earth from Asteroids, 27 - 30 April 2009, Granada, Spain..

- Berrilli, F.; Velli, M.; Roselli, L.; Bigazzi, A. et al., 2008 The ADAHELI Solar Mission, 12th European Solar Physics Meeting, Freiburg, Germany, Online at <http://espm.kis.unifreiburg.de/>, p.6.6

- Bigazzi, A., Velli, M., Berrilli, F., Egidi, A., Alimenti, F., & Roselli, L., 2008, ADAHELI: Investigating the structure of Sun's lower atmosphere and solar irradiance, *COSPAR 37*, 291.

- F. Berrilli, A. Bigazzi, F. Manni, A. Ruzmaikin, N. Murphy, 2007 The Moon as a Platform for High Resolution Solar Imaging, in *Proceedings of "ICEUM9 9th ILEWG International Conference on Exploration and Utilisation of the Moon"*, Session #6, (B.H. Foing, S. Espinasse, G. Kusters, editors), ESA/ILEWG online publication, <http://sci.esa.int/iceum9>, Sorrento & ESTEC 2007.

- Bigazzi A. et al., 2007, A compact solar telescope for precursor missions to the Moon, Proceedings of the "INTERNATIONAL CONFERENCE MOON BASE - A Challenge For Humanity" Moscow, November 16th-17th, 2006
- Bigazzi et al., 2007 Anisotropy and universality in Solar Wind turbulence. Ulysses spacecraft data, in Advances in Turbulence XI Proceedings of the 11th EUROMECH European Turbulence Conference, June 25-28, 2007, Porto, Portugal Editors: J.M.L.M. Palma and A.Silva Lopes Springer Proceedings in Physics 117, Springer, Heidelberg
- Bigazzi A., Biferale L., Velli M., 2006 Small-scale anisotropy and intermittency in high and low-latitude solar wind The Astrophysical Journal, 2006, 638, 499
- Bigazzi A., Ruzmaikin A.A., 2004 The Sun's Preferred Longitudes and the Coupling of Magnetic Dynamo Modes. The Astrophysical Journal, 2004, 604, 944.