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## CURRICULUM VITAE

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### LIVIO CONTI

Date and place of birth: August 6<sup>th</sup> 1969, Ceprano (FR), Italy  
Phone: +39 3382631719  
e-mail: conti.livio@gmail.com, livio.conti@uninettunouniversity.net  
Current position: Adjunct Professor/Researcher of Physics - FIS/01 (permanent position),  
Professor of: Physics (since 2011 to present),  
Fundamentals of applied mechanics (since 2011 to present),  
Geochemistry and volcanology (since 2016 to present).  
Work address: Faculty of Engineering  
UNINETTUNO University,  
Corso Vittorio Emanuele II 39, 00186 Rome, Italia

### Education:

High school: Liceo Classico. Marks: 60/60.

University: (1995) Laurea degree in Physics (*Laurea, cum laude*) at “La Sapienza” Rome University.  
Title of the Laurea degree Thesis: “*Study of the quasi-temporal gauge on the lattice and non-perturbative calculation of the renormalization constant of the axial current*”.  
Supervisor: Prof. Silvano Petrarca.

Master: (1995-1996) Master in Physics at “La Sapienza” University of Rome

Post-degree fellowship (1996) Winner of a fellowship for Theoretical Physics of the National Institute of Nuclear Physics (INFN).  
Research subject: “*Non-perturbative calculation of the  $f^B$  decay constant, study of the  $\Delta I=1/2$  rule in the non-leptonic  $K$  decay, evaluation of the  $B$ -parameters for the complete basis of 4-fermion operators with  $\Delta S=2$* ” .  
Supervisors: Prof. G. Martinelli, Prof. A. Vladikas.

Ph.D.: (1996-1999) Ph.D. in PHYSICS at the “Tor Vergata” University of Rome, Italy  
Title of the Ph.D. Thesis: “*Study of the top quark decay: radiative correction to the  $t \rightarrow b W$  decay and finite width effect in the  $t \rightarrow b W Z$  decay*”.  
Supervisors: Prof. Guido Altarelli, Prof. Vittorio Lubicz

Ph.D.: (2011-2014) Ph.D. in ASTRONOMY at the “Tor Vergata” University of Rome, Italy,  
Title of the Ph.D. Thesis: “*Automatic recognition of whistlers for the CSES satellite and simulation of meteors for the JEM-EUSO telescope*”.  
Supervisor: Prof. Roberta Sparvoli

### **Post-doc:**

<u>Post-doc:</u> (2002-2006) Research project:	Postdoctoral Research assistant at Roma Tre University, Department of Physics, assigned to work on the ESPERIA project “ <i>ESPERIA project</i> ”. Supervisor: Prof. Vittorio Sgrigna.
<u>Post-doc:</u> (2006-2007) Research project:	Postdoctoral Research assistant at Roma Tor Vergata University, Department of Physics “ <i>Development of instrumentation to detect electric and magnetic fields in the top-side ionosphere</i> ”. Supervisor: Prof. Piergiorgio Picozza.
<u>Post-doc:</u> (2007-2008) Research project:	Research Contract with the INFN, Sezione di Perugia “ <i>Study of the experimental configuration of electric and magnetic field detectors for space applications</i> ” Supervisor: Prof. R. Battiston.
<u>Post-doc:</u> (2009-2011) Research project:	Research Contract with the INGV, Sezione di Roma. “ <i>Interseismic numerical modelling from SAR and optical data - SIGRIS Project</i> ”.(Project financed by ASI - Italian Space Agency). Supervisor: Dr. Stefano Salvi, Dr. Salvatore Barba.

### **Contracts & collaborations:**

<u>European Space Agency (ESA)</u> (February-May 2000)	Research Contract with the ULISSE consortium (“Tor Vergata” University) for the analysis of particles data observed by SAMPEX/PET (NASA) satellite. Supervisor: Prof. A. Salsano.
<u>Laben Spa</u> (2000)	Research Contract at the “Tor Vergata” University. Grant funded by LABEN Spa (a FINMECCANICA company) prime contractor for the ESPERIA payload. Supervisor: Prof. P. Picozza
<u>Italian Space Agency (ASI) and Roma Tre University</u> (March-August 2001)	Research Contract with the Roma Tre University to develop the Phase A Study of the ESPERIA project. Supervisor: Prof. V. Sgrigna
<u>L’Aquila University</u> (Nov.2001-Apr. 2002)	Research Contract to study earthquake precursors with satellite data Supervisor: Prof. R. Scrimaglio.
<u>Adimedia srl, Unicity (Roma)</u> (Nov.2000-Mar. 2001)	Contract to develop Internet web sites and database management with SQL and Transact-SQL
<u>Tor Vergata University</u> (March-July 2006)	Research Contract for the project “ <i>Innovative devices for electric and magnetic field measurements and data acquisition equipment for space missions</i> ” Supervisor: Prof. P.Picozza

### **Teaching activity:**

Roma Tre University Dep. of Physics & Dep. of Mathematics	Teaching Assistant and Tutor for courses of basic mechanics, thermodynamics and electromagnetism, and laboratories of mechanics, optics and electronics:
A.Y.1999-2000	- Teaching Assistant, 1 <sup>st</sup> year mathematics course: mechanics, electricity, magnetism.
A.Y.2000-2001	- Teaching Assistant, 2 <sup>nd</sup> year mathematics course: electromagnetism - Tutor for 1 <sup>st</sup> year physics course: mechanics laboratory.
A.Y.2001-2002	- Teaching Assistant, 1 <sup>st</sup> year mathematics course: mechanics, electricity, magnetism. - Tutor for 1 <sup>st</sup> year physics course: mechanics laboratory.
A.Y.2002-2003	- Tutor for 1 <sup>st</sup> year physics course: mechanics
A.Y.2003-2004	- Tutor for 1 <sup>st</sup> year physics course: mechanics
A.Y.2004-2005	- Teaching Assistant, 1 <sup>st</sup> year physics course: mechanics - Teaching Assistant, 2 <sup>nd</sup> year physics course: electronics laboratory.
A.Y.2008-2009	- Teaching Assistant, 1 <sup>st</sup> year optics course: optics laboratory
Doctorate School, A.Y.2003-2004	Lectures for the Ph.D. in Physics (“XIX Ciclo”): “ <i>Physics of the wave-particle interactions in the iono-magnetospheric region</i> ”
Dep. of Physics, A.Y.2004-2005	Lectures for the advanced course of <i>Physics of the Ionosphere</i>
Dept. of Biology, A.Y.2009-2010 A.Y.2010-2011	Adjunct Professor of "Laboratory of Informatics, statistics and experimental data analysis – Module of informatics – II Module"
Doctorate School, A.Y.2003-2004	Lectures for the Ph.D. in Physics (“XIX Ciclo”): “ <i>Physics of the wave-particle interactions in the iono-magnetospheric region</i> ”
Uninettuno University	<u>Faculty of Engineering</u>
Since 2011 up to now	Professor of Mechanics, Electromagnetism and Fundamentals of applied mechanics. Uninettuno University

### **Supervisor of several degree Theses**

“La Sapienza” University of Rome (2003)	Supervisor of the Degree Thesis in Physics: “ <u><i>Preseismic electromagnetic emissions and magnetospheric perturbations</i></u> ” by Aurora Buzzi.
Roma Tre University (2004)	Supervisor of the Degree Thesis in Physics: “ <u><i>Generation and propagation of electromagnetic preseismic emissions</i></u> ” by Antonella Cirella.
Roma Tre University (2004)	Supervisor of the Bachelor Thesis in Physics: “ <u><i>Data analysis of electromagnetic differential strainmeter</i></u> ” by Emiliano Mancini.
“La Sapienza” University of Rome	Supervisor of the Degree Thesis in Physics: “ <u><i>The EGLE experiment on board of the International Space Station</i></u> ”

(2005) by Carlo Stagni.  
Roma Tre University Supervisor of the Degree Thesis in Physics:  
 (2006) “Study of the propagation of seismo-electromagnetic emissions into the atmosphere and magnetosphere” by Sara Ronchetti.

**Scientific & research activity:**

Edinburgh,  
February-March  
1995: The study of the quasi-temporal gauge (started within the “APE Group” in Rome) has been developed on the lattices of the UKQCD collaboration with Prof. C. Parrinello and Dr.D.S.Henty at the Physics Department of the Edinburgh University.

“La Sapienza”:  
University of Rome  
(1995-1997) Non-perturbative calculation of the  $f^B$  decay constant, study of the  $\Delta I=1/2$  rule in the non-leptonic K decay, evaluation of the B-parameters for the complete basis of 4-fermion operators with  $\Delta S=2$ .  
 Supervisors: Prof. G.Martinelli and Prof. A. Vladikas

Roma Tre  
University:  
(1996-2000) Collaboration with Prof. Altarelli and Prof. Vittorio Lubicz to study the rate of the top decay process:  $t \rightarrow b W Z$ . This channel is on threshold and is allowed for  $m_{top} \approx 176$  GeV. The research has allowed to correct previous estimations (published in literature) of the branching ratio: the decay probability at the threshold level is strongly controlled by the effects of W and Z finite widths.

ESPERIA satellite  
project:  
(2000) Study of the temporal correlation between electromagnetic emissions due to seismic activity and the precipitation of particle from the inner Van Allen radiation belts.

These phenomena can be investigated by particle detectors, Langmuir probes and EM field sensors installed on board of satellite. On this subject there is a fruitful collaboration between the Roma Tre University (Prof. V.Sgrigna), the “Tor Vergata” University of Rome (Prof. P.Picozza), the INFN (Italy), the MePhI of Moscow (Russian Federation) (Prof. Galper), the Georgian Academy of Science (Tbilisi, Rep. of Georgia) (Prof. D.Zilpimiani). In this framework, the Italian Space Agency (ASI) has supported the Phase A Study of the ESPERIA (Earthquake investigations by Satellite and Physics of the Environment Related to the Ionosphere and Atmosphere) satellite project dedicated to measure seismo-electromagnetic emissions. In the Phase A Study, Livio Conti:

- has participated to the mission design and planning;
- has analysed the data collected by the SAMPEX satellite to define the ESPERIA orbital requirements;
- has been responsible of the particle detector analyser (PDA) and of the MAFA magnetometers on board of the satellite.

On the same subject, Livio Conti has collaborated to design the particle detector of the ARINA experiment (ROSAVIKOSMOS, & INFN) in orbit since 2006 within the PAMELA experiment.

“TELLUS”  
monitoring Network  
(2001- in progress) Within the studies of the lithospheric deformations, Livio Conti is co-investigator of the tiltmeters TELLUS Network installed in Central Apennines (at the LNGS INFN Laboratory, in a L’Aquila cave, and in the Stiffe caves) to measure the “tilt” deformations of crustal blocks. The

TELLUS network is continuously monitoring the area. Data registered in occasion of the Umbria seismic crisis (1997) have allowed observing important results of a seismic creep in the preparation focal area.

“Electromagnetic differential strainmeter” (First Patent of Roma Tre University)  
(2002-2003)

The ESPERIA team has developed an “electromagnetic differential strainmeter” (First Patent of Roma Tre University). This equipment can measure deformation near the seismic faults, but also the stability of buildings and landslides. A prototype of the instrument has been installed at Valmalenco for the monitoring of the Spriana (Sondrio) landslide. For this project Livio Conti has built the remote control system and the data acquisition and signal conditioning units. The project has been supported by the Lombardia Region.

“DEMETER” satellite  
(2004-in progress)

The ESPERIA team is *Guest Investigator* of the DEMETER French satellite mission (Principal Investigator: Prof. M.Parrot, CNRS/LPCE). The mission is devoted to study seismic, anthropogenic and natural electromagnetic emissions. In this framework Livio Conti is analysing data of electric and magnetic field (IMSC and ICE experiments) and of particle (IDP experiment) measured on board of the DEMETER satellite. The study is dedicated to research electromagnetic emission induced by the seismic activity in the low magnetosphere.

“LAZIO-SIRAD-EGLE” experiment  
(2002-2006)

The LAZIO-SIRAD-EGLE experiment (within the framework of the PRIN2002 program of the MIUR (Italian Education Minister)) is a collaboration between the Universities of Roma Tre, Perugia and “Tor Vergata”, INFN, MEPHI, FILAS-Regione Lazio). Aim of the experiment is to study the ionizing radiations (particle detector LAZIO-SIRAD, R.Battiston & P.Picozza) and the electromagnetic emissions (EGLE magnetometer, V.Sgrigna) on the topside ionosphere.

The experiment has been carried out by the Italian astronaut R. Vittori, within the ENEIDE mission (April 2005) on board of the International Space Station. This study will help to monitor particle and electromagnetic ISS environment. Particular interest is devoted to detect electromagnetic pre-seismic emissions and precipitation of particle bursts from the inner Van Allen radiation belts. Within the LAZIO-SIRAD-EGLE mission, Livio Conti:

- is co-investigator of the EGGLE experiment, constituted by a search-coil uniaxial magnetometer to measure low frequency geomagnetic fluctuations;
- is head of the EGGLE data analysis
- is head of the on board pc architecture.

Triaxial magnetometer and electrometer  
(2006- 2007)

In collaboration with D. Zilpimiani (Georgian Academy of Science) and V.Sgrigna (Roma Tre University), L.C. has contribute to develop a triaxial magnetometer and an electrometer, in the framework of the project “Development of an innovative instrument for space born simultaneous measurement of perturbations of the electric/magnetic field and of high energy trapped particles in the Van Allen belts and their correlation with geophysical phenomena”, PRIN 2005, P.I. Prof. R.Battiston.

Model of propagation of seismo-

Livio Conti is studying the propagation of electromagnetic waves through layered media with several conductivity profiles. Aim of the research is to model the seismo-electromagnetic source as a multipoles electric and

electromagnetic signals  
(2003-in progress)

magnetic expansion and to study the propagation of SEM from the hypocentral zone, to the Earth surface up to the ionosphere to evaluate the strength of the EM fields for satellite observations.

AUSONIA project  
(2007- in progress)

The candidate is part of the group, led by Prof. V.Sgrigna, that has developed the satellite project AUSONIA submitted to the Italian Space Agency. Aim of the project is:

- to study the temporal stability of the flow of Van Allen particles and emissions of X-rays and gamma of terrestrial origin;
- mapping of the geomagnetic field;
- the ionospheric monitoring and the tomography of the plasmasphere;
- to study optical and UV emissions of tropospheric origin.

The project, developed in collaboration with Carlo Gavazzi Space SpA, the INFN and the INGV, involves more than 10 Universities and Research institutes. Livio Conti is involved in the development of X and gamma ray detector and is responsible of the MAGIA (search-coil magnetometer) experiment on board of AUSONIA.

Patents of Industrial Inventions  
(2008-2009)

The candidate is involved to develop techniques and electronic devices suitable for continuous and high efficiency spectral analysis and waveform reconstruction of analog signals. Aim of this research is to develop devices to optimize the dynamic range of the analog-digital conversion. These devices can find useful application in explorative studies of signals with unknown spectrum and temporal variability and for which a continuous calibration of the amplifier gain in each frequency band is needed. These systems are suitable in laboratory applications, in ground based and space based observations to study every kind of analog signals for devices requiring reduced form factor, modularity, and low power consumption. For these devices Livio Conti is owner and inventor of the following patents:

n. **RM2008A000688**

n. **RM2009A000001**

n. **RM2009A000200**

n. **RM2009A000207**

LIMADOU – CSES satellite collaboration  
(2005 – at present)

L.C. participates to the LIMADOU collaboration between Italy and China to develop the CSES satellite, aimed at studying the electromagnetic environment of the Earth and monitoring the natural disasters, in particular, earthquakes. The satellite will carry several instruments (such as fluxgate and search-coil magnetometers, high-energy particle detectors, LP-RPA and ion drift meter), all of them designed to jointly detect perturbations of different parameters and physical quantities. The CSES mission is a second generation satellite, after the French satellite DEMETER, conceived to collect a substantial amount of data in the monitoring: electric and magnetic fields (in a broad range of frequencies), electron temperature and ion density plasma, as well as fluxes of Van Allen trapped particles. In this context, L.C. leads the "Uninettuno - Earth" research group that is involved in: theoretical modelling of the propagation of electromagnetic signals in stratified media (lithosphere - ionosphere - magnetosphere) , analysis of satellite data and design of the CSES instruments. In particular, the "Uninettuno - Earth" research group is developing the CSES electromagnetic field sensor (EFD sensor). The EFD

is an instrument of high sensitivity that will be installed on four expandable booms deployed away from the body of the satellite to make measurements as much as possible free from EM interference originating from the satellite spacecraft.

JEM-EUSO program  
(2012 - )

L.C. is working within the JEM-EUSO collaboration to develop the so-called Jem-Euso UV telescope, to be installed on board the International Space Station. The experiment aims at studying the fluorescence light emitted by high-energy cosmic rays hitting the Earth's atmosphere. In this context, he is developing the software to reconstruct the EAS events and to trigger the events detection for the Jem-Euso "pathfinder" experiments such as EUSO-TA (at the Telescope Array, Utah, USA); EUSO-Ballon (a balloon flight on August 25, 2014, for a test campaign with an UV laser projected from Earth and to study the UV background of the planet); EUSO-SPB (NASA balloon launched on April 24th 2017 from Wanaka (New Zealand) and landed on the South Pacific Ocean on May 7th.), mini-EUSO (experiment to be installed on board of the ISS in 2018)

“Uninettuno-EARTH”  
Research group  
(2013 - )

L.C.s is the coordinator of the research group called "Uninettuno Earth" at the Faculty of Engineering of the University Uninettuno, Rector Decree 59/2013, devoted to study the Sun-Earth interactions and the near-earth space physics. A specific line of research concerns the study of seismo-electromagnetic precursors detectable on the ground and by satellite. In this context, the group collaborate to develop the project Italian-Chinese satellite CSES (China Seismo - Electromagnetic Satellite).

“Uninettuno-High-Energy”  
Research group  
(2013 - )

L.C. is the coordinator of the research group called "Uninettuno High-Energy", established at the Faculty of Engineering of the University Uninettuno, Rector Decree 60/2013, to study astrophysics and physics of fundamental interactions, and, in particular, cosmic rays through the JEM-EUSO experiment.

*Advances in Space Research*

Since 2004, Livio Conti is reviewer for the “*Advances in Space Research*” journal.

### Conferences – Meetings – Schools:

- Edinburgh (UK),  
February-March 1995: Collaboration with Prof. C.Parrinello e Dr. D.S.Henty on the quasi-temporal gauge. Grant given by the INFN.
- Cortona (Italy),  
June 1995: “Convegno annuale dei fisici teorici italiani” meeting. Title of the talk: “*Study of the quasi temporal gauge on the lattice*”
- Parma (Italy),  
September 1996: “V Seminario Nazionale di Fisica Teorica” summer school
- Otranto (Italy),  
September 1996: “IX Seminario Nazionale di Fisica Nucleare e Subnucleare” summer school
- Edinburgh (UK),  
July 1997: “Lattice'97” conference. Title of the contribution: “*A High Statistics Lattice Calculation of Heavy-Light Meson Decay Constants*”.
- Boulder,  
(Colorado,USA),  
July 1998: “Lattice'98” conference.  
Title of the talk: “*B-parameters for  $\Delta S = 2$  SUSY Operators*”.
- Corfù (Greece),  
September 1998: “*Summer Institute of Corfù on the elementary Particle Physics*”, summer school
- Moscow (Russian Fed.),  
June 2000: Russian-Italian meeting at the MePhI of Moscow, on the ARINA experiment and the ESPERIA mission
- Nice (France),  
April 2002: Conference “European Geophysical Society 2002”.  
Title of the contribution “*Natural and anthropogenic emissions from the earth's surface and their effects in the near earth space*”.
- Nice (France),  
April 2003: Conference “EGS-AGU-EUG 2003”.
- Toulouse (France),  
September 2003: “ISEC2003 Radiation Belt Science” conference, September 2-5, Toulouse (France). Title of the contribution: “*A Possible Correlation between Seismic Events and Trapped Particles precipitation*”, di A.Buzzi, L.Conti, A.M.Galper, S.V.Koldashov, V.Malvezzi, A.Murashov, P.Picozza, R.Scrimaglio, V.Sgrigna, and L.Stagni, P19, Abstract p. 45.
- Nice (France),  
April 2004: “EGU 2004” conference.
- Corte (Corsica, France)  
July 2004: “NATO Advanced Study Institute on Sprites, Elves and Intense Lightning Discharges”, Corte in Corsica, July 24-31, 2004. Poster: “*Seismo-electromagnetic emissions*” (A. Buzzi, et al.)
- Moscow (Russian Fed.),  
January 2005: Participation to the *Acceptance Test 2* of the LAZIO-Sirad-EGLE experiment at the ENERGIA Centre of Moscow.
- Moscow,(Russian Fed.),  
February 2005: Head of the training for the astronauts (R.Vittori (Italy) and B.Thirsk (Canada)) about the EGLE magnetometer working procedure for the ISS-ENEIDE mission. (“*Juri Gagarin*” Center (Star City))
- La Antigua  
(Guatemala), April 2005 Talk “*Un método de estudio satelitar de precursores sísmicos*” at the “*Incontro Italo-CentroAmericano sulla prevenzione e mitigazione dei rischi naturali*” organized by IILA, at La Antigua, (Guatemala), April 20-25, 2005.



- Frascati (Italy),  
February 2005 “INFN-SPAZIO / 2 ” meeting, LNF, 16 Feb. 2005, Frascati (Italia)
- Toulouse (France),  
July 2005 “IAGA 2005” conference (*Toulouse, France, 18 - 29 July*), talks :  
  - “*The EGLE experiment*”, di L. Conti, A. Buzzi, V. Sgrigna, C. Stagni, et al. (The EGLE experiment Team), IAGA2005-A-01522.
  - “*Influence of the seismic activity on the inner Van Allen radiation belt*”, Conti L., Buzzi A., Galper A.M., Koldashov S.V., Murashov A.M., Picozza P, Scrimaglio R., Sgrigna, V. and Stagni L, IAGA2005-A-01518.
- Milan (Italia),  
October 2005 “*I percorsi dell’Innovazione*” exhibition (Il Sole 24Ore & Camera di Commercio di Milano), “*Filas per lo Spazio: la missione Eneide*”, Smau 2005, October 1<sup>st</sup> 19-23 2005.
- Perugia (Italia),  
December 2005 1<sup>st</sup> Italy-China meeting on “Observations and analysis of seismo-electromagnetic precursors on ground and from space”, (organized by INFN and CEA (Chinese Earthquake Administration), talks:  
  - “*The EGLE magnetometer*“;
  - “*Overview of the existing literature evidence of seismo-electromagnetic precursors: space based observations*”;
  - “*Correlations between earthquakes and anomalous particle bursts from SAMPEX/PET satellite observations*”, Conti L., Buzzi A., Galper A.M., Koldashov S.V., Murashov A.M., Picozza P, Scrimaglio R., Sgrigna, V. and Stagni L..
- Tolosa (Francia),  
June 2006 “Symposium International Déméter” (*Toulouse, France, 14-16 June 2006*). Talk: “*Seismo induced electromagnetic and particle perturbations in space*” by Conti L., A.Buzzi, P.Picozza, S.Ronchetti, V.Sgrigna, C.Stagni, D. Zilpimiani.
- ESTEC (Olanda),  
July 2006 LAZIO experiment Acceptance Test: ASTROLAB Mission on board of the International Space Station during Increment 14.
- Orleans (Francia),  
November 2006 LPCE - Gruppo Esperia meeting, within the “DEMETER Guest investigator programme”.
- ESTEC (Olanda),  
February 2007 Final Review meeting on the ASTROLAB Mission on board of the International Space Station during Increment 14.  
Talk: *The LAZIO experiment during the Increment 14*.
- Roma (Italy),  
May 2007 Meeting: “ACTEL Radiation tolerant FPGAs for satellites and high-energy physics”, Dip. di Fisica, Università Roma Tre.
- Perugia (Italy),  
July 2007 “IUGG, XXIV General Assembly”, (Perugia, 2-13 July 2007).  
Talk: *Possible influence of seismic activity on the propagation of anomalous whistlers recorded in space*, by: L.Conti, A. Buzzi, M. Parrot, J.L.Pinçon, V.Sgrigna and D.Zilpimiani, IAGA-IASPEI-IAVCEI Joint Section “JSS010: Progress in electromagnetic studies on earthquakes and volcanoes - Seismo-electromagnetic studies using space technology”, Abstr. 10093, (Oral Presentation n.2072).  
Poster: *Statistical study of anomalous fluctuations of whistler data recorded by DEMETER*, by A. Buzzi, L.Conti, M. Parrot, J.L.Pinçon, V.Sgrigna and D. Zilpimiani, IAGA-IASPEI-IAVCEI Joint Section "JSS010: Progress in electromagnetic studies on earthquakes and volcanoes - Seismo-electromagnetic studies using space technology",

- Abstr. 10032, (Poster presentation n.2090).
- Jakarta (Indonesia),  
July 2007 “International Workshop on Early Warning and Monitoring Earthquake by Using Electromagnetism Detecting Satellite” (25 – 27 July 2007, Jakarta, Indonesia) organized by Secretariat of Asia Pacific Multilateral Cooperation in Space Technology and Applications (AP-MCSTA), Indonesian National Institute of Aeronautics and Space (LAPAN), and China National Space Administration (CNSA).  
Talk: “*Experience on the Magnetic and Electric Detectors of the EGGLE-LAZIO Technology Demonstrator*”, by: L. Conti and V. Sgrigna.
- Rome (Italy),  
December 2007 Meeting: “Corso di programmazione di FPGA: Radiation tolerant FPGAs for satellites and high-energy physics”, Dept. of Physics, Roma Tre University.
- Perugia (Italy)  
February 2008 2<sup>nd</sup> Italy-China meeting on “Observations and analysis of seismo-electromagnetic precursors on ground and from space”, (organized by INFN and CEA (Chinese Earthquake Administration)). Talks:
  - “*The electromagnetic detectors for satellite observations: from the EGGLE experiment to the three-axial search-coil magnetometer*”
  - “*Seismo electromagnetic precursors: the Sampex data analysis*”
- Rome (Italy)  
April 2009 DPC (Dipartimento della Protezione Civile) workshops:
  - SIGRIS project “*Sistema di osservazione spaziale per la Gestione del Rischio Sismico*” (ASI-INGV) (P.I. S. Salvi)
  - S1 project “*Determinazione del potenziale sismogenetico in Italia per il calcolo della pericolosità sismica*” (P.I. S.Barba)
- Rome (Italy)  
October 2009 “*Convegno annuale dei progetti sismologici, Convenzione-Quadro tra DPC e INGV, Triennio 2007-09*”. Poster:
  - “*Uncertainty of geologic and geodetic observables computed via FEM simulation of Italy*” for S1 project.
- Rome (Italy)  
June-July 2010 “Final Meeting of the Seismological Projects”, *Convenzione-Quadro tra DPC e INGV, Triennio 2007-09*. Poster title “*Analysis of the numeric uncertainty on the FEM estimations of geologic and geodetic observables for the Italian region*”.
- Beijing (China)  
August 2011 “*Italian-Chinese meeting for the CSES satellite: the EFD experiment*”:  
Talks:
  - “*Electric Field Detector scientific objectives*”,
  - “*Seismo-electromagnetic phenomena from space & on ground*”.
- Beijing (China)  
September 2011 “APSCO (Asia-Pacific Space Cooperation Organization) 3rd international conference”. Talk:
  - “*Italian participation to the CSES project*”
- Erice (Italy)  
October 2012 “HIGHLY SPECIALIZED SEMINARS «EUGENE P. WIGNER» 11th Seminar: EARTHQUAKES EARLY WARNING FROM SPACE”,  
Talk: “*Instrumentation and analysis strategies to search for particle precipitation from space*”
- Tenerife (Spain)  
June 2013 “XIII International Meeting of the JEM-EUSO Collaboration” Tenerife, Spain, June 17-21 2013.
- Gaeta (Italy)  
September 2013 INAF PhD School of Astrophysics “Francesco Lucchin”

- Lanzhou (China)  
December 2013 “China-Euro Academic Seminar on Space Electric Field Exploration (CEAS-SEFE). Lanzhou, China, December 3-6 2013. Talk: “*A review of electromagnetic and iono-magnetospheric phenomena associated with the seismic activity.*”
- Palermo (Italy)  
June 2014 15th International JEM-EUSO Meeting, June 9- 13, 2014, Palermo, Italy.
- Beijing (China)  
November 2014 1st CSES Satellite Workshop, November 14 – 16, Beijing, China.  
Talk: *Algorithms for CSES mission data analysis*  
Authors: L. Conti & P.M. Innocenzi for the LIMADOU-CSES Collaboration
- Moscow (Russia)  
December 2014 16th JEM-EUSO International Meeting  
December 1<sup>st</sup> – 5<sup>th</sup>, 2014, Moscow State University, Moscow, Russia
- Monte Porzio (Italy)  
June 2014 Meeting: 10 years of Pamela, June 15<sup>th</sup>, 2014, Monte Porzio, Italy.
- Turin (Italy)  
January 2015 Euso-balloon meeting  
January 22-23, 2015, Turin, Italy.
- Paris (France)  
June 2016 19th JEM-EUSO International Meeting  
June 20-24, 2016, Paris, APC, University Paris Diderot, France
- Beijing (China)  
August 2016 2nd CSES Satellite Workshop, Beijing, China, August 23-25, 2016
- Lanzhou (China)  
August 2016 Electromagnetic Studies of Earthquakes and Volcanoes (EMSEV) meeting, Lanzhou, China, August 25-29, 2016.
- Madrid (Spain)  
May 2016 ESA meeting: “Call for new science ideas in ESA's science programme”, May 31st, 2016, Madrid, Spain.
- Vienna (Austria)  
April 2016 EGU General Assembly 2017, 23–28 April 2017, Vien (Austria)  
Talk: *Neural network-based recognition of whistlers on spectrograms detected by satellite*  
Authors: Livio Conti and the CSES-LIMADOU Collaboration  
Poster: *The Italian contribution to the CSES satellite*  
Authors: Livio Conti and the CSES-LIMADOU Collaboration  
Poster: *The High Energy Particle Detector (HEPD) for the CSES satellite*  
Authors: R. Sparvoli & the CSES-LIMADOU Collaboration  
Poster: *The high-performance electric field detector EFD for space-based measurements*  
Authors: D. Badoni and the CSES-LIMADOU Collaboration
- Banff, Alberta (Canada)  
March 2017 Fourth Swarm Science Meeting & Geodetic Missions Workshop, 20-24 March 2017, Banff, Alberta (Canada)  
Talk: *The Contribution of CSES Mission to Study Lithosphere-Atmosphere-Ionosphere Coupling Phenomena Through the Analysis of Combined Missions Data and Ground Measurements*

**Software expertise:**

- OS: UNIX, Linux and WINDOWS.
- Data acquisition and remote control
- Digital Signal Processor (DSP) programming
- FORTRAN, C , CVI, etc.
- Internet: HTML, ASP JavaScript, JScript, VBScript.
- Database: SQL, Transact-SQL, Access.
- MATHEMATICA, MATLAB.

**Data processing:**

- Office, LaTeX, Origin
- Statistical data Analysis
- Signal Analysis (IDL , SWAN, Code Composer Studio)
- Management of satellite database and monitoring networks
- Orbital analysis, satellite flight simulation (STK)
- Numerical simulations and Montecarlo techniques

## Patents pending:

Patents Italian  
Office  
(Dec. 20<sup>th</sup> 2008)

Patent pending n. **RM2008A000688**  
OWNER: Livio Conti  
TITLE: “Metodo a feedback variabile di condizionamento di segnali e relativo sistema di acquisizione, analisi spettrale e gestione digitale dei dati” (“Tunable feedback method for signal conditioning and acquisition system, spectral analysis and data processing”)  
IPC CLASS (International Patent Classification): G01R23165  
 (“SECTION G - PHYSICS: Measuring electric variables / measuring magnetic variables: Arrangements for measuring frequencies / Arrangements for analysing frequency spectra using filters”),  
INVENTORS: Livio Conti, Vittorio Sgrigna, David Zilpimiani

Patents Italian  
Office  
(Jan 2<sup>nd</sup> 2009)

Patent pending n. **RM2009A000001**  
OWNER: Livio Conti  
TITLE: “Tecnica di ricostruzione della forma d'onda di segnali con selezione multicanale ed amplificazione differenziale variabile a retroazione” (“Technique for signals waveform reconstruction based on a multi-channels selection and tunable feedback differential amplification”)  
IPC CLASS (International Patent Classification): G01R1304  
 (“SECTION G - PHYSICS: “*Arrangements for displaying electric variables or waveforms for producing permanent records*”)  
INVENTORS: Livio Conti, Vittorio Sgrigna, David Zilpimiani

Patents Italian  
Office  
(April 4<sup>th</sup> 2009)

Patent pending n. **RM2009A000200**  
OWNER: Livio Conti  
TITLE: “Sistema di calibrazione dell’amplificazione per dispositivi di acquisizione di segnali analogici” (“System to calibrate amplification in analog data acquisition devices”)  
CLASSE IPC (International Patent Classification): G01D302  
 (“SECTION G01D, subclass: “*Measuring arrangements with provision for altering or correcting the transfer function*”)  
INVENTORS: Livio Conti, Vittorio Sgrigna, David Zilpimiani

Patents Italian  
Office  
(April 30<sup>th</sup> 2009)

Patent pending n. **RM2009A000207**  
OWNER: Livio Conti  
TITLE: “Scheda di condizionamento per il filtraggio e l’amplificazione multicanale a retroazione in sistemi di acquisizione di segnali analogici” (“Conditioning board for filtering and multi-channels feedback amplification in analog data acquisition devices”)  
CLASSE IPC (International Patent Classification): G01R2300  
 (“SECTION G - PHYSICS: Measuring electric variables / measuring magnetic variables: Arrangements for measuring frequencies / Arrangements for analysing frequency spectra”)  
INVENTORS: Livio Conti, Vittorio Sgrigna, David Zilpimiani

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2. **Full QCD with dynamical Wilson fermions on a  $24^3 \times 40$ -lattice – a feasibility study,**  
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3. **A High Statistics Lattice Calculation of Heavy-Light Meson Decay Constants**  
C. R. Allton, L. Conti, M. Crisafulli, L. Giusti, G. Martinelli, F. Rapuano.  
*Phys.Lett. B* 405 (1997) 133.
4. **Non-perturbative Renormalization of the Complete Basis of Four-fermion Operators and B-parameters**  
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L. Conti, A. Donini, V. Gimenez, G. Martinelli, M. Talevi, A. Vladikas.  
*Phys.Lett. B* 421 (1998) 273.
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*Phys.Lett.B* 453 (1999) 30.
8.  **$\Delta M_k$  and  $\epsilon_k$  in SUSY at the next-to-leading order**  
M. Ciuchini, L. Conti, A. Donini, E. Franco, V. Gimenez, L. Giusti, V. Lubicz, G. Martinelli, A. Masiero, I. Scimemi, L. Silvestrini, M. Talevi, A. Vladikas  
*Journal of High Energy Phys.* 9810 (1998) 008.
9. **B-parameters for  $\Delta S = 2$  Supersymmetric Operators**  
C. R. Allton, L. Conti, A. Donini, V. Gimenez, L. Giusti, G. Martinelli, M. Talevi, A. Vladikas.  
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14. **TELLUS** Sgrigna, V., Conti, L., Malvezzi, V.,  
*LNGS Annual Report 2002, INFN, LNGS/EXP-07/03, 2003, pp. 217-232.*
15. **Natural and anthropogenic emissions from the earth's surface and their effects in the near-earth space.** V.Sgrigna, R.Console, L.Conti, A.M.Galper, V.Malvezzi, M.Parrot, P.Picozza, R.Scrimaglio, P.Spillantini and D.Zilpimiani.  
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L. Conti, A. Cirella, V. Malvezzi, and V. Sgrigna, *Proc.1<sup>st</sup> General Assembly, European Geosciences Union, Nice, France, 25-30 April 2004, NH4.02-1FR4P-0430, p. 337, 2004. Geophys. Res. Abs., Vol. 6, 04927, 2004, SRef-ID: 1607-7962/gra/EGU04-A-04927.*
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23. **The ESPERIA Project: a Mission to Investigate the near-Earth Space,** Sgrigna, V., R. Console, L. Conti , A.M. Galper, V. Malvezzi, M. Parrot, P. Picozza, R. Scrimaglio, P. Spillantini, D. Zilpimiani, 2004, in: *Earth Observation with CHAMP, Results from Three*

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  27. **Ground rock deformation events and their possible effects in the near-Earth space**, Sgrigna, V.; Buzzi, A.; Conti, L.; Picozza, P.; Stagni, C.; Zilpimiani, D., 2005. *EGU, Vienna 2005, Austria, 24-29 April, 2005, EGU05-A-06210*
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