

# Europass Curriculum Vitae

## Personal information

Surname / First name

Address

Personal Email

Nationality

Gender

## Occupational field

**Luongo, Orlando**

(Work): Via Madonna delle Carceri, Camerino, Italy

orlando.luongo@unicam.it

Italian

Male

**Assistant professor in theoretical physics**

## Summary:

Since 2017 Orlando Luongo works as professor of Cosmology and Quantum Field Theory at the University of Camerino, Physics Division of the School of Science and Technology. He is also a research associate at the Mathematics Department of the University of Pisa. Before his current employment, he has worked as Assistant Professor (Ricercatore Articolo 36, III livello) at the National Laboratories of Nuclear Physics (INFN) of Frascati. In particular, he was part of the *Satellite/lunar/GNSS laser ranging/altimetry and cube/microsat Characterization Facilities Laboratory - SCF Lab* in Frascati where he worked in the MoonLIGHT and LARES2 experiment, for which he served as Product Assurance Manager. He got cum laude his master degree in Physics at the University of Naples "Federico II" in 2008. He got in 2015 a second bachelor in Civil Engineering at the University of Naples "Pegaso". He gained his international PhD degree in Relativistic Astrophysics at the University of Rome "La Sapienza" in 2012. In 2015 he was awarded the Polvani national prize, from the Italian Society of Physics (SIF), for his high-impact researches in Astrophysics. In 2018 he received the National Scientific Qualification as Associate Professor, (art.16 of the law 30 December 2010, n.240, Settore Concorsuale:02/A2 - Fisica Teorica delle Interazioni Fondamentali, SSD FIS/02 - Fisica Teorica, Modelli e Metodi Matematici). His interests are essentially based on cosmology and relativistic astrophysics, i.e. the nature of dark energy and dark matter, and on the study of relativistic quantum information, covariant thermodynamics, effective field theory, entanglement and so forth.

## Summary of publications:

1. Total number of works: > 90
  2. Total articles with peer review process: > 70
  3. Total articles submitted to journals: 7
  4. Total articles in preparation: 8
  5. Total single authored: 4
  6. Total proceedings with peer review process: 8
  7. Total chapters of books: 4
  8. Total (expected) books: 1
  9. Total number of citations: > 1600
  10. h-factor: **23**
- (data got from <https://inspirehep.net> last update: March 2021)

## List of scientific interests:

1. Main topics: Theoretical Physics, Cosmology.
2. Quantum gravity and quantum cosmology in relativistic quantum information theory. Black hole physics and gravitational collapse. Black hole, quantum information and entanglement. Extended and modified theories of gravity. Effective model-independent reconstructions of dark energy. Cosmography of the observable universe: null diagnostics and Monte Carlo Analysis. Exact solutions and absolute calculus in General Relativity. Dark matter physics: nature, constituents and its role in the universe dynamics. Relativistic astrophysics: Gamma Ray Bursts, Magnetars, Quasars, etc.

## Work experience

_____Dates	01/01/2017 – present
Occupation or position held	Professor of Cosmology and QFT
Main activities and responsibilities	Teaching responsibility.
Name and address of employer	University of Camerino, School of Science and Technology, Physics Division, Camerino, Italy.
_____Dates	23/10/2020 – present
Occupation or position held	Research associate
Title of the fellowship	Test di teorie della gravitazione con esperimenti di radioscienza
Main activities and responsibilities	Research in gravitational physics and cosmology.
Name and address of employer	University of Pisa, Mathematics Department, Pisa, Italy.
_____Dates	09/10/2017 – 08/09/2020
Occupation or position held	Ricercatore INFN, III livello - Articolo 36
Main activities and responsibilities	Research in space optics and lunar laser ranging techniques.

Name and address of employer	National Institute of Nuclear Physics (INFN), Frascati, Italy.
_____—Dates	01/03/2017 – 30/09/2017
Occupation or position held	Post Doc Fellowship
Title of the fellowship	Relativistic Quantum Information Theory
Main activities and responsibilities	Research in gravitational theories and quantum gravity: theory and experiments.
Name and address of employer	School of Science and Technology, University of Camerino, Camerino, Italy.
_____—Dates	01/01/2016 – 28/02/2017
Occupation or position held	Post Doc Fellowship
Title of the fellowship	Cosmology in <i>non-standard</i> gravitational frameworks
Main activities and responsibilities	Research in non-homogeneous cosmology and in the late time universe dynamics.
Name and address of employer	Department of Physics "E. Pancini", University of Naples, Naples, Italy.
_____—Dates	01/07/2015 – 31/12/2015
Occupation or position held	Post Doc Fellowship
Title of the fellowship	Cosmographic reconstructions of Dark Energy in Alternative Theories of Gravity
Main activities and responsibilities	Research in the dynamics of dark energy at late and early times.
Name and address of employer	Department of Mathematics and Applied Mathematics, University of Cape Town, Cape Town, South Africa.
_____—Dates	01/03/2013 – 14/04/2015
Occupation or position held	Fellowship awarded for the Km3NeT project
Title of the fellowship	Una nuova frontiera per la ricerca: <i>Gli osservatori sottomarini</i>
Main activities and responsibilities	Research in Astroparticle Physics and Cosmology with particular attention to neutrino oscillations and masses.
Name and address of employer	National Institute of Nuclear Physics (INFN) and National South Laboratories (LNS), Catania, Italy.
_____—Dates	01/12/2011 – 31/10/2012
Occupation or position held	Post Doc Fellowship
Post-doc title	Dark Energy from <i>Geometrothermodynamics</i>
Main activities and responsibilities	Research in geometrical aspects of Universe's thermodynamics.
Name and address of employer	Institute for Nuclear Science (ICN), Universidad Nacional Autonoma de Mexico, (UNAM), Mexico City, Mexico.

## Education and training

_____—Dates	03/11/2008 – 29/03/2012
Occupation or position held	International PhD in Physics

<p>Main activities and responsibilities</p> <p>Name and address of employer</p> <p>With thesis</p> <p>Final vote</p>	<p>Research in General Relativity: Theory and experiments</p> <p>University of Rome "La Sapienza", (Italy)</p> <p>Geometrothermodynamics in General Relativity as a tool to describe the Universe dynamics</p> <p>Excellent/Excellent</p>
<p>_____Dates</p> <p>Title of qualification awarded</p> <p>Name and type of organization providing education and training</p> <p>With thesis</p> <p>Final vote</p>	<p>01/10/2006 – 16/07/2008</p> <p>Master Degree in Physics</p> <p>University of Naples "Federico II"</p> <p>L'approccio tomografico in Cosmologia Quantistica</p> <p>110/110 cum laude</p>
<p>_____Dates</p> <p>Title of qualification awarded</p> <p>Name and type of organization providing education and training</p> <p>With thesis</p> <p>Final vote</p>	<p>01/10/2003 – 14/09/2006</p> <p>Bachelor's Degree in Physics</p> <p>University of Salerno</p> <p>Fenomeni di coerenza in processi di interazione tra radiazione e materia</p> <p>110/110 cum laude</p>
<p>_____Dates</p> <p>Title of qualification awarded</p> <p>Name and type of organization providing education and training</p> <p>With thesis</p> <p>Final vote</p>	<p>06/12/2014 – 29/09/2015</p> <p>Bachelor's Degree in Civil Engineering</p> <p>University of Naples "Pegaso"</p> <p>Studio quantitativo delle facciate ventilate per il miglioramento dell'efficienza termica degli edifici</p> <p>105/110</p>

**Qualification(s) and Award(s):**

National Scientific Qualification (abilitazione scientifica nazionale as Associate Professor (professore associato), art.16 of the law 30 December 2010, n.240, Settore Concorsuale: 02/A2 - Fisica Teorica delle Interazioni Fondamentali, Settore Scientifico Disciplinare: FIS/02 - Fisica Teorica, Modelli e Metodi Matematici). Italian qualification, "Tirocinio Formativo Attivo", TFA, at the University of Salerno, Italy, 29/07/2013, with final vote 100/100. Awarded by "Società Italiana di Fisica" (SIF) with Giovanni Polvani Prize for scientific industriousness merits concerning young scientists for the period May 2008 - May 2015, Rome, Italy, September, (2015). Awarded for *Progetto di Formazione Specialistica: Una Nuova Frontiera per la Ricerca: Gli Osservatori Sottomarini*, considered as a Master diploma in Physics, Catania, Laboratori Nazionali del Sud (INFN-LNS), Italy, (2015). Awarded for best paper 2014 from "Highlights of 2014" of IJMPD gained for the work: *A unified dark energy model from a vanishing speed of sound with emergent cosmological constant*, in collaboration with prof. Hernando Quevedo, Co-Author of the work, (2014). Prize gained for "high-impact science communication" gained from *Percorsi culturali di eccellenza: Sapere Aude*, awarded by Istituto di Istruzione Superiore "Leonardo Da Vinci", Salerno, Italy, (2013).

**Personal skills and competences**

Mother tongue

Other language(s)

**Italian**

*Self-assessment  
European level<sup>(\*)</sup>*

**English**  
**Spanish**  
**French**

Understanding		Speaking		Writing
Listening	Reading	Spoken interaction	Spoken production	
Excellent	Excellent	Excellent	Excellent	Excellent
Excellent	Excellent	Excellent	Excellent	Excellent
Good	Good	Good	Good	Good

<sup>(\*)</sup> Common European Framework of Reference (CEF) level

**Language diplomas:**

1. Trinity College Certificate (English, Level 9/Level B2.3), Salerno, (2002).
2. Aspect International Language Academies, London, (English, Level B2), (2002).
3. PET certificate, Cambridge, (English, Level B2), (2008).
4. BULATS certificate, Cambridge, (English, Level C2), (2017).
5. BULATS certificate, Cambridge, (Spanish, Level B2), (2018).

**Organisational, social skills and competences:**

Experience to carry out research for the worldwide scientific community and to contribute to the research environment of physics and mathematics departments and of research institutes. Experience of multitasking skills to get results on various projects at the same time. Attitude to problem solving skills. Abilities in communications and decision making. Experience of multicultural/challenging teams. Work pursued in research teams in Europe, America and Africa. Experience of inclusion into different research groups, interacting with scientific communities. Experience of managing disagreements in a socially acceptable manner with empathy and a clever sense of humour.

**Computer skills and competence in programming:**

E.C.D.L. Professional C.A.D. (European Computer Driving License), 3rd level; E.C.D.L. Advanced (European Computer Driving License), 2nd level; E.C.D.L. Core (European Computer Driving License), 1st level, Windows (All versions and packages), Linux (All versions and packages), MAC-OS (All versions and packages), Web site realizations and maintenance, Numerical calculus and programming; Wolfram Mathematica (All versions), Maple, MATLAB, CosmoMC, CMB, Iraf, Python, R, SuperMongo, C/C++, Fortran, Office (All versions), GNUPLOT, Origin, LaTeX, Root, BAT, AutoCAD, BIM, CodeV, Planetary Ephemeris Program-PEP.

**Master(s) and Specialisation(s):**

Specialisation course in: *Space Optics* obtained at the European Space Research Technology Centre (ESTEC), Noordwijk, the Netherlands, (2017). Diploma *Consulente Ambientale* obtained by Eureka Formazione, Policoro, Italy, (2017). Diploma *Consulente Energetico* obtained by Eureka Formazione, Policoro, Italy, (2017). Specialization in: *Corso di Formazione Docenti Formatori e Responsabili Progetti Formativi* obtained by Eureka Formazione, Policoro, Italy, (2017). Specialization in: *Safety Manager* obtained by Eureka Formazione, Policoro, Italy, (2017). Specialisation course in: *Campi Elettromagnetici, Valutazione del Rischio e Protezione*, University of Naples "Federico II", Physics Department, Naples, (2016). Diploma A.N.F.O.S. *Sicurezza nei cantieri edili*, Nocera, Italy, (2016). Diploma *Operatore su Personal Computer* obtained by C.P.F. school, Solofra, Italy, (1996).

**Research responsibilities at Unicam:**

1. Research associate to Quantum Optics and Quantum Information Group at the University of Camerino.

**Research responsibilities abroad:**

1. Research associate to the Al-Farabi Kazakh National University, Almaty, Kazakhstan.
2. Research associate to the University of Campina Grande, Paraiba, Brazil.

**Teaching experiences and supervision of students:**

**At the University of Camerino, Camerino, Italy:**

1. Adjunct Assistant Professor for the courses of "Cosmology" (Cosmologia) at the University of Camerino, Camerino, Italy, 2017-present, 6 CFU.
2. Adjunct Assistant Professor for the courses of "Quantum Field Theory" (Teoria Quantistica dei campi) at the University of Camerino, Camerino, Italy, 2017-present, 6 CFU.
3. Adjunct Assistant Professor for the courses of "Theoretical Physics" (Fisica Teorica) at the University of Camerino, Camerino, Italy, from October 2021 on, 6 CFU.
4. Teaching experience for the course of "Metodi Matematici per la Fisica" (Mathematical Methods for Physics) at the University of Camerino, Camerino, Italy, 2017, for a total of 25 hours, in collaboration with Prof. S. Mancini.
5. Teaching experience for the course of "Metodi Matematici per la Fisica" (Mathematical Methods for Physics) at the University of Camerino, Camerino, Italy, 2018, for a total of 25 hours, in collaboration with Prof. S. Mancini.

**Outside the University of Camerino.**

1. Adjunct Assistant professor with Co.Co.Co. for the courses "Fisica" (Physics), "Fisica Generale" (General Physics), "Matematica 1" (Calculus) at the University of Benevento, Unisannio, 2 years during 2014-2016.
2. Teaching experience for the courses "Metodi Matematici per la Fisica" (Mathematical Methods for Physics), "Fisica Generale" (General Physics), "Cosmologia" (Cosmology), "Astroparticle Physics" and Co-Teaching experience for the PhD course "Constraining Cosmologies using CosmoMC and CAMB" at the University of Naples "Federico II", 2 years during 2012-2014.
3. Teaching support for the course "Theoretical physics" at the University of Rome "La Sapienza", Rome, Italy, 2009-2010.

**Supervisor for undergraduate students:**

1. More than 15 students, including Master's, Bachelor's degrees and stage students.

**Referee and editorial activities:**

1. Referee for more than 50 international journals.
2. Editor for the journal *International Journal of Geometrical Methods in Modern Physics*, website: [www.worldscientific.com/worldscinet/ijgmmp](http://www.worldscientific.com/worldscinet/ijgmmp)
3. Managing Editor for Publishing House: "Licosia Edizioni", Rome, Italy, website: [www.licosia.com/?page\\_id=1679](http://www.licosia.com/?page_id=1679)
4. Editor for the journal *Galaxy*, website: <https://www.mdpi.com/journal/galaxies/editors>

**Invited special issues  
guest editor:**

1. Lead Guest Editor for the special issue: *Model-Independent Techniques of Dark Energy Scenarios in Homogeneous and Inhomogeneous Cosmologies* on Advances in High Energy Physics, Hindawi, website: [www.hindawi.com/journals/ahep/si/808350/cfp/](http://www.hindawi.com/journals/ahep/si/808350/cfp/)
2. Lead Guest Editor for the special issue: *Beyond the Standard Cosmological Model in the Multi-messenger Era* on Symmetry, MDPI., website: [www.mdpi.com/journal/symmetry/special\\_issues](http://www.mdpi.com/journal/symmetry/special_issues)
3. Lead Guest Editor for the special issue: *Theories of Gravity: Alternatives to the Cosmological and Particle Standard Models* on Universe, MDPI., website: [www.mdpi.com/journal/universe/special/issues/gravity/theories](http://www.mdpi.com/journal/universe/special/issues/gravity/theories)
4. Lead Guest Editor for the special issue: *Dark Cosmology: Shedding Light on Our Current Universe* on Galaxy, MDPI., website: [https://www.mdpi.com/journal/galaxies/special\\_issues/DarkCosmology](https://www.mdpi.com/journal/galaxies/special_issues/DarkCosmology)
5. Guest Editor for the special issue: *New Solutions of Einstein Equations in Spherical Symmetry* on Symmetry., MDPI, website: [www.mdpi.com/journal/symmetry/special/issues/Einstein\\_Equations\\_Spherical\\_Symmetry](http://www.mdpi.com/journal/symmetry/special/issues/Einstein_Equations_Spherical_Symmetry)

**Outreach at Unicam:**

1. Tutor for the stage of students *Porte aperte in unicam Estate 2020*, during the period from July 8th to August 7th 2020 and Speaker on theoretical physics and cosmology at the *Open Day*, University of Camerino, physics division, Camerino, Italy.
2. Permanent member for study advisory at the University of Camerino, physics division, Camerino, Italy.
3. Speaker on theoretical physics and cosmology at the *Open Day*, University of Camerino, physics division, Camerino, Italy.

**Scientific  
collaborations:**

More than 50 collaborators, among National and International Institutes and Universities.

**Conferences:**

Present in more than 50 conferences, schools and meetings