

ACADEMIC CURRICULUM VITAE Stefano Oss

place and date of birth: Trento (Italy), Sept 3rd, 1959; nationality: Italian

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Education since leaving school

- 1978-1982, Laurea in Fisica (four-year degree, cum laude), University of Trento - Italy
- 1985-86, admitted to PhD courses in physics, II cycle, University of Padova and Trento – Italy

Present appointment

- Associate Professor (confirmed since 2004), formerly in Structure of Matter (FIS03), now in Education and History of Physics (FIS08) since November 1st, 2001 at the University of Trento, Department of Physics, Trento, Italy
- national qualification (ASN) as Full Professor, (formerly 02/B2-FIS/08, now 02/D1-FIS/08) from 11/12/2013 to 11/12/2022

Academic responsibilities

- Head of the Physical Science Communication Laboratory, Department of Physics, University of Trento
- Deputy of the Rector for Science Communication at the University of Trento
- Deputy of the Rector for Counseling Policies at the University of Trento
- Deputy of the Director for Communication and Outreach at the Physics Department
- Coordinator of the physics area of the Pre-Service Teacher Training system at the University of Trento (SSIS/TFA/PAS/FIT/PFPTI)
- President of the committee “Commissione Paritetica Docenti-Studenti” – Physics Department
- Coordinator of the physics area in the Scientific Degree National Project (Piano Nazionale Lauree Scientifiche, MUR) for the Trentino- Alto Adige Region
- Member of the Executive Board for the Trento University-School cooperation central office (Direttivo di Ateneo Formazione Insegnanti e Rapporti con le Scuole, FIRS)
- Co-Director/founder of the Jet Propulsion Laboratory – Science Theater, Trento

Professional experience

1986-2001: scientific researcher – assistant professor, General Physics (B01A), Science Faculty – Physics Department - University of Trento

Teaching: courses for exercises in General Physics (mechanics, electromagnetism, thermodynamics, at undergraduate level) and in Advanced Theoretical Physics (application of group theory to physical topics, PhD courses)

Research: Experimental atomic physics (molecular scattering of low- energy electron and positrons) and theoretical molecular physics (development of algebraic techniques based on dynamical symmetries)

1990: visiting scientific researcher, Yale University, New Haven, CT, USA

- Research: Theoretical molecular physics with Franco Iachello

1993: visiting assistant professor, Princeton University, Princeton, NJ USA.

- Teaching: course in “Topics in Advanced Chemical Physics”, Post-doctoral level
- Research: Theoretical molecular physics with Giacinto Scoles

2001-2012: associate professor (confirmed since 2004), Structure of Matter (FIS03), Science Faculty – Physics Department - University of Trento

- Teaching: courses in General Physics (mechanics, electromagnetism, thermodynamics) and in Statistics at undergraduate level; courses in Physics Education (educational aspects of science of sound, meteorology and thermodynamics, modern physics, physics laboratory) at the pre-service teacher training school (SSIS)
- Research: theoretical molecular physics; physics education and teaching research, settling of the new physics education and communication laboratory
- In charge of the Physical Science Communication Laboratory

2012-present: confirmed associate professor, Didactics and History of Physics (FIS08), Physics Department - University of Trento

- Teaching: courses in General Physics (mechanics, undergraduate); courses in Physics Education (physical science communication and teaching methods, computers in the lab, experiments in the introductory lab); courses for pre-service teacher training at the SSIS, TFA, PAS and pre- FIT schools; courses for in-service teachers at primary and secondary school levels.
- Research: physics education
- Head of the Physical Science Communication Laboratory
- Coordinator of the Academic Advisory Board of the MUSE Science Center in Trento (2011-2013)
- In charge of the SSIS/TFA/PAS/FIT/PFPTI) schools, physics area, for teacher training, Trentino Alto-Adige (1999-present)

Experience in academic teaching

given courses in the last 5 years

- General Physics I (first and second part) and Science Communication online courses on dedicated YouTube channels (<https://stefanooss59.com/didattica-education/materiale-per-i-corsi-universitari/>).
- General Physics I, Physics Department, Trento University, about 90 students (I semester), 140 students (II semester), av. score 9.9/10
- Modern Physics (educational topics in quantum mechanics and applied physics), Mathematics Department, Master Degrees in Physics and Mathematics, av. score 8.9/10, about 35 students per semester.
- History of Physics (including story-telling in science and technology), Math and Physics Departments, Bachelor degree, Trento University, av. score 8.8/10, about 20 students per semester.
- Physics I (introduction to classical mechanics), Industrial Engineering Department, Bachelor degree, Trento University, av. score 8.9/10, about 120 students per semester.
- Physics (general introduction to classical physics: mechanics, thermodynamics and electromagnetism), Department of Information Engineering and Computer Science, Bachelor degree, Trento University, av. score 8.7/10, about 110 students per semester.
- Science Communication (non-formal and pedagogical topics in science communication), Math, Biology, Computer Science and Physics Departments, Bachelor degree, Trento University, av. score 8.6/10, about 40 students per semester.
- Physical Science Communication and Teaching Methods (theoretical and practical aspects in physics teaching), Math and Physics Departments, Master degree, Trento University, av. score 8.8/10, about 35 students per semester.
- New course for the 2021: Modern Physics at the Philosophy Department (II semester), about 30 students

Note: Scores attributed according to the official evaluation procedure at the University of Trento (grand-averaged score of courses in science departments: 8.6/10)

The undersigned has been scientific coordinator and instructor in a series of refresher courses offered as a teacher training system (mostly in cooperation with IPRASE, Istituto Provinciale per la Ricerca e la Sperimentazione Educativa, Ente Strumentale della Provincia Autonoma di Trento – Local government

Institution for research and educational experimentation”, <http://www.iprase.tn.it/>), among which:

- kindergarten level (Trento, 2010);
- first level secondary schools (Frascati - RM, 2005, Marostica -VI, 2007)
- primary and secondary 1st level schools (Trento, 2009, 2010, 2014, 2018, 2019, 2020)
- Licei Scientifici Galilei e Da Vinci (Trento, 2013, 2015)
- Liceo Scientifico Torricelli (Bolzano, since 2005 on a yearly base)

Recent postgraduate supervision: PhD thesis titles

- Proposal and development of new non-formal tools for education and communication of physical sciences (XXV cycle)
- Educational projects about energy and energetics. Analysis of case studies and a proposal for a renewed approach to physics teaching (XXVIII cycle)
- Design and experimentation of communication and of a teaching sequence on atmospheric physics (XXIX cycle)
- Digital Physics Education. Personal devices, mediated reality, serious gaming (XXX cycle, prize for the best PhD thesis at the Physics Department, cum laude)
- Physics education research in a two-year course with extended hour amount (XXXV cycle)
- Active learning approaches based on V-Phyton/Phyton computational platforms (XXXVI cycle)

Other temporary academic responsibilities

- President/chairman at the 103rd National Conference of the Italian Physical Society for the Didactics and History of Physics General Section, 2017.
- Scientific coordinator of the “Researcher Night” events – University of Trento, 2013
- Scientific coordinator of exhibitions devoted to the physics of sound and of cosmic ray detection at the “Science Festival” in Genova (2012 and 2014) and at “Bergamo Scienza” (2015)

Memberships

- Collaborator and scientific advisor for the magazine “Query” founded by Piero Angela (2009-2017)
- Unique European member of the Editorial Board of “The Physics Teacher” AAPT – APS Journal (2009-2012)
- member of the Scientific Advisory Board of Frascati Scienza (2008-2010)
- chairman of the Academic Advisory Board of the MUSE Science Center in Trento (2011-2013)

Participation in exhibitions and public events

The Physical Science Communication Laboratory (ruled by the undersigned) has been in charge, in co-operation with Science Museums in Trento, Bolzano and other institutions, for the project and organization of the following exhibitions and events for the diffusion of science and for the support of new educational teaching-learning and “edutainment” practices:

- Sperimentiamo! (1998, Science Museum in Trento)
- Destinazione Stelle (1999, Caproni Aeronautics Museum, Trento)
- Energia 2001 (2001, Science Museum in Trento)
- Il pianeta Rosso (2003, Caproni Aeronautics Museum Trento)
- Fisica ... mente divertente (2004, Bolzano)
- Mobilità (2004, Science Museum in Trento)
- I giochi di Einstein (2005, Science Museum in Trento and 2006 Science Museum in Warsaw, Poland)
- Try to Fly (2007, Caproni Aeronautics Museum, Trento)
- Astronomia in Mostra (2010, Science Museum in Trento)
- Cooperation with Bergamo Scienza and The Walt Disney Company Italy for the production of experimental kits devoted to the life and discoveries of Guglielmo Marconi (2010)
- Co-ordination and project of the full plan for exhibitions at the physics hall in the new MUSE Science Center in Trento (2010-2013)
- Scientific support for the itinerant exhibition “La fisica dei giocattoli” in cooperation with “ForMath”, see <http://www.formath.it/divulgazione-scientifica/la-fisica-dei-giocattoli/>
- Cooperation with “Reinventore”, producer of science kits at various school levels, see <http://www.reinventore.it/>
- Cooperation with and institutional sponsorship to LevelUp, a new startup for the realization of science

laboratories at various school levels, see <https://leveluptrento.com/>

- Twenty years of Scientific Toys, the new exhibition (on occasion of the 103rd National Conference of the Italian Physical Society, 2017, Trento, see: <https://lcsfunitn.wordpress.com/i-giocattoli-e-la-scienza-online/>)

Estimated total number of visitors at the exhibitions: over two million people and thousands of school classes from primary to secondary levels.

Research and scholarships

The undersigned started his academic life as an experimentalist in the field of low energy atomic physics with antimatter. He then turned his attention to more theoretical issues, especially to the development of new algebraic techniques devoted to the interpretation of rovibrational spectra of complex molecules. This first period of activity is traced along the list of “early” publication at the end of this CV. An even more abrupt change in his professional career happened with the renewal of the Physical Science Communication Laboratory (<https://lcsfunitn.wordpress.com/>), headed by the undersigned since 2001. This laboratory constitutes his natural environment in terms of research investment and experimentation. It is thanks to this laboratory that the main research focus has been developed and is nowadays maintained in its operative settlement. In a few words, doing physics and sharing its results to a wide audience is a very challenging task: current research of the undersigned is devoted to push and enforce new ways of addressing these subjects of study, working inside schools, with school teachers and students. Physics should be discovered and enjoyed beyond its traditional academic interpretation, at every cultural and formation level. This discipline has to be seen, perceived and intended as a very efficient, if not as a unique observatory allowing its followers to enter in touch with the scientific method and to practice it. Efforts of the undersigned are dedicated to the construction of a series of teaching-learning paths allowing physics and science teachers at every school level to give their own contribution to the paradigmatic change and methodological evolution in their work. As a particularly important node, the introduction and usage of simple – possibly non-expensive objects (starting from toys) as an alternative and non-formal laboratory is considered and brought to reality and deeply analyzed. The adoption and development of computer-based educational activities is also a central point in the research scenario of the undersigned. Using smartphones, tablets and other contemporary and popular devices is just a possible way of considering alternative languages to the communication of science. There are of course even more routes to follow in this perspective: non-formal and informal story-telling is a promising approach which is also being convincingly supported by the undersigned in his recent and present research. Collaborations and mixing of science contents with theatrical interpretation and dramatization is in fact being more and more spread and adopted by several school teachers in collaboration with the laboratory headed by the undersigned. This part of the current research is based on a mixed science-theater laboratory (the “Jet Propulsion Theater”) co-funded by the undersigned and by an art director and actor (formerly an active scientist), see <http://www.jetpropulsiontheatre.org/>. Events and productions of this laboratory are delivered to a wide audience, yet, with a special cure for high schools (students and teachers). All these activities have a direct correspondence with the chronological sequence of publications (and with the organization and participation to special events, conferences, seminars, workshops, teamwork with museums and science centers) which is reported in this CV.

The laboratory headed by the undersigned has gained a central and strategical role and it serves a continuously increasing number of users, with a specific dominance of school teachers at every level, from primary to secondary/high schools, including the extremely important area of permanent counseling and advising during the transitions between various schools. A web page has been created which allows the exchange information at several educational levels concerning teaching/learning physics (and, more generally, science) subjects (see: <https://fiscaperlascuola.wordpress.com/>).

Grants/joint-projects

- FP6-2004-SCIENCE-AND-SOCIETY-11: Physics is Fun (FP6: partner – 16 months)
- L.6/2003/DM7999 – Scientific knowledge diffusion: new tools for an effective communication of contemporary physics. (coordinator – 12 months) – MIUR 2003
- L.6/2004/DM16857 – Physics and flight simulation: beyond videogaming (coordinator – 12 months) – MIUR 2004
- L.6/2007/DM43921 – How airplanes fly: science communication and the physics of flight (coordinator – 12 months) – MIUR 2007
- PRIN 2004020419_003 Area 02 Models and reality: development to physics knowledge – University of Naples, coordinator, University of Trento, partner – 24 months – PRIN 2004
- MIUR grant for the Piano Nazionale Lauree Scientifiche (on a biannual basis, 2006-2021, see: <https://plstrento.wordpress.com/>)
- PRIN 2012, University of Bologna, coordinator, University of Trento, partner – not financed; “Science Education, strategic goal for the development of the Country: MOdels and STRategies for teacher education in Physics (MOST)”. – PRIN 2012
- PRIN 2015, University of Trento, national coordinator - not financed: “X-PHYS: eXtra-ordinary PHYSicists

at work". Scienze fisiche e modernità sociale in una rete di ricerca e azione per costruire nuove vie didattiche, comunicative e per una più efficace percezione e condivisione dell'indagine sulla natura dell'universo e delle tecnologie derivate. – PRIN 2015

- Joint physical-chemistry introductory courses in Technical Schools. Research grant, 2017-2020, Autonomous Province of Trento and University of Trento.
- PRIN 2017, not financed, University of Bologna, coordinator, University of Trento, partner: "COGNITIVE models in teaching physics through learning Objects (COGITO)"
- COSID-20, University of Trento, "COLlaborazioni per le Scienze In laboratorio Didattico – 2020", Research Grant 2021-2023.
- CURIOUS, "Culture as a Unique Resource to Inspire, Outreach & Understand Science", Creative Europe EC Research Grant 2021-2023, Joint venture "Jet Propulsion Theater" and Physics Department, UniTrento

Publications (peer reviewed)

1. Oss S; Perini M **"Thermal energy transfer: some mathematical models and infrared thermography in an undergraduate laboratory"** in *Giornale di Fisica della Società Italiana di Fisica* (2021), accepted for publication, in print.
2. Oss S **"Vintage thermology and modern-day infrared imaging"** in: *PHYSICS EDUCATION* 56 (2021) – 025025 (6 pp) DOI:10.1088/1361-6552/abdd91
3. Oss S **"Infrared visualization of lumped and non-lumped thermal transient processes in an introductory laboratory"** 2021 *EUROPEAN JOURNAL OF PHYSICS* 42 (2021) 015101
4. Rosi T; Perini M; Onorato P; Oss S **"Commercial virtual reality headsets for developing augmented reality setups to track three-dimensional motion in real time"**. DOI:10.1088/1361-6552/abd5a2. pp.025016. In *PHYSICS EDUCATION* - ISSN:0031-9120 vol. 56 (2) (2021)
5. Oss S **"Infrared imaging of the cooling fin equation"** In: *EUROPEAN JOURNAL OF PHYSICS* 41 (2020) 055102-055111
6. Logiurato F; Gratton L; Oss S **"Optical Simulation of Laue Crystal Diffraction with New Experiments on Diffraction"** - In: *THE PHYSICS TEACHER*. - ISSN 0031-921X. - 58:2(2020), pp. 130-132.
7. Onorato, P.; Malgieri, M.; Polesello, M.; Salmoiraghi, A.; Oss, S. **"From chance to the physical laws: Toy models to connect the microscopic and macroscopic understanding of physical phenomena"** In: *IL NUOVO CIMENTO C*. - ISSN 2037-4909. - 2020:42(2020), pp. 1-13.
8. Oss S **"Infrared imaging of a non-stationary thermal conductive process and observation of its Green's kernel"** In *EUROPEAN JOURNAL OF PHYSICS*. - ISSN 0143-0807. - 41:1(2019), pp. 01510201-01510220
9. Malgieri M; De Ambrosis A; Rosi T; Onorato P; Gratton L. M; Oss S **"Colours in your pocket: Smartphone-based spectrometers to investigate the quantum world"**. DOI:10.1088/1742-6596/1287/1/012005. pp.012005. In *JOURNAL OF PHYSICS. CONFERENCE SERIES* - ISSN:1742-6588 vol. 1287 (1) (2019)
10. Rosi, T; Onorato, P; Oss, S **"The Augmented Laboratory – 3D, Multiple Object Tracking"**. In *JOURNAL OF PHYSICS. CONFERENCE SERIES* - ISSN:1742-6588 vol. 1286 (2019) pp.012052. DOI:10.1088/1742-6596/1286/1/012052
11. Rosi T; Onorato P; Oss S. **"The Augmented Laboratory - A mixed reality setup for physics education"**. DOI:10.1088/1742-6596/1287/1/012059. pp.012059. In *JOURNAL OF PHYSICS. CONFERENCE SERIES* - ISSN:1742-6588 vol. 1287 (2019)
12. Onorato, P; Gratton, L M; Oss, S; Malgieri, M **"From the dicey world to the physical laws: dice toy models for bridging microscopic and macroscopic understanding of physical phenomena"**. In *JOURNAL OF PHYSICS. CONFERENCE SERIES* - ISSN:1742-6588 vol. 1287 (2019) pp.012026 DOI:10.1088/1742-6596/1287/1/012026.
13. Gratton, L M; Perini, M; Oss, S **"A simple experimental observation and modeling of optical diffraction patterns"**. In *PHYSICS EDUCATION* - vol. 54 (2019) pp.043006 DOI:10.1088/1361-6552/ab1e94.
14. Rosi T; Gratton L M; Onorato P; Oss S. **"Light interference from a soap film: A revisited quasi-monochromatic experiment"**. DOI:10.1088/1361-6552/aae9a7. pp.015018.1-015018.5. In *PHYSICS EDUCATION* - ISSN:0031-9120 vol. 54 (2019)
15. Oss, S; Brunello, Andrea; Echard, P **"From science to theatre"**. In *NATURE NANOTECHNOLOGY* - ISSN:1748-3395 vol. 14 (2019) pp.402-403. DOI:10.1038/s41565-019-0445-7.
16. Onorato, P. Gratton, L. M.; Polesello, M.; Salmoiraghi, A.; Oss, S., **"The Beer Lambert law measurement made easy"** in *PHYSICS EDUCATION*, v. 53, n. 3 (2018), p. 035033. - DOI: 10.1088/1361-6552/aab441
17. Rosi, T.; Oss, S.; Onorato, P." **Discussing fundamental topics of quantum physics using visualizations of bound states"** *JOURNAL OF PHYSICS. CONFERENCE SERIES*. - ISSN 1742-6588. - 1076:1(2018), p. 012010.
18. Onorato, P.; Gratton, L.; Malgieri, M.; Oss, S., **"The photoluminescence of a fluorescent lamp: didactic experiments on the exponential decay"** in *PHYSICS EDUCATION*, v. 52, n. 1 (2017), p. 015011-015018. - DOI: 10.1088/1361-6552/52/1/015011
19. Oss, S; Onorato, P; Rosi, T, **"Studying colours with a smartphone"** in *IL NUOVO CIMENTO C*, v. 2017,

- (2017). - DOI: 10.1393/ncc/i2017-17104-8
20. Rosi, T.; Onorato, P.; Oss, S., **"Multiple object, three-dimensional motion tracking using the Xbox Kinect sensor"** in EUROPEAN JOURNAL OF PHYSICS, v. 38, n. 6 (2017), p. 065003. - DOI: 10.1088/1361-6404/aa8183
 21. Moggio, L; Onorato, P; Gratton, L M; Oss, S, **"Time-lapse and slow- motion tracking of temperature changes: response time of a thermometer"** in PHYSICS EDUCATION, v. 52, n. 2 (2017), p. 023005-023007. - DOI: 10.1088/1361-6552/aa5363
 22. Onorato, P.; Malgieri, M.; Moggio, L.; Oss, S., **"Microscopic and probabilistic approach to thermal steady state based on a dice and coin toy model"** in EUROPEAN JOURNAL OF PHYSICS, v. 38, n. 4 (2017), p. 045102-045118. - DOI: 10.1088/1361-6404/aa690f
 23. Bonato, J.; Gratton, L. M.; Onorato, P.; Oss, S., **"Using high speed smartphone cameras and video analysis techniques to teach mechanical wave physics"** in PHYSICS EDUCATION, v. 52, n. 4 (2017), p. 045017-045021. - DOI: 10.1088/1361-6552/aa6f8c
 24. Oss, S; Zendri, G; Rosi, T, **"The Hubble party balloon and the expanding universe"** in EUROPEAN JOURNAL OF PHYSICS, v. 2016, n. 37 (2016), p. 1-11. - DOI: 10.1088/0143-0807/37/5/055701
 25. Rosi, T.; Malgieri, M.; Onorato, P.; Oss, S., **"What are we looking at when we say magenta? Quantitative measurements of RGB and CMYK colours with a homemade spectrophotometer"** in EUROPEAN JOURNAL OF PHYSICS, v. 37, n. 6 (2016), p. 065301. - DOI: 10.1088/0143-0807/37/6/065301
 26. S Oss; T Rosi, **"A Bit of Quantum Mechanics"** in THE PHYSICS TEACHER, v. 2015, n. 53 (2015), p. 230-233. - DOI: 10.1119/1.4914565
 27. Oss, S.; Zendri, G., **"Electro-thermal analogies and imaging radiation thermometry"** in EUROPEAN JOURNAL OF PHYSICS, v. 36, n. 6 (2015), p. 065016-065029. - DOI: 10.1088/0143-0807/36/6/065016
 28. Zendri, G.; Valdan, M.; Gratton, Luigi; Oss, Stefano, **"Musical intonation of wind instruments and temperature"** in PHYSICS EDUCATION, v. 50, n. 3 (2015), p. 348-351. - DOI: 10.1088/0031-9120/50/3/348
 29. T.López Arias; G.Zendri; L.Gratton; S.Oss, **"Còmo vuela un areoplano?"** in REVISTA ESPAÑOLA DE FÍSICA, v. 2014 28, n. 2 (2014), p. 14-19
 30. M. Valdan; L. M. Gratton; G. Zendri; S. Oss, **"The speed of sound in singing tubes"** in PHYSICS EDUCATION, v. 49, (2014), p. 268-270. - DOI: 10.1088/0031-9120/49/3/268
 31. Oss S; Zendri G; Gratton L M, **"The weight of iron and feathers"** in PHYSICS EDUCATION, v. 2014, n. 49 (2014), p. 544-547. - DOI: 10.1088/0031-9120/49/5/544
 32. M. Rossi; L. M. Gratton; S. Oss, **"Bringing the Digital Camera to the Physics Lab"** in THE PHYSICS TEACHER, v. 51, (2013), p. 141-143. - DOI: 10.1119/1.4792005
 33. S. Oss; L. M. Gratton; T. López-Arias, **"Spark spectroscopy and the emission spectrum of air made easy"** in PHYSICS EDUCATION, v. 48, (2013), p. 426-429. - DOI: 10.1088/0031-9120/48/4/F04
 34. S Oss; L M Gratton; G Calzà and T López-Arias, **"Fast quasi-adiabatic gas cooling: an experiment revisited"** in EUROPEAN JOURNAL OF PHYSICS, v. 33, (2012), p. 1155-1165. - DOI: 10.1088/0143-0807/33/5/1155
 35. G. Calzà; L.M. Gratton; T.Lopez-Arias; S.Oss, **"Very fast temperature measurement with a thin lamp filament"** in PHYSICS EDUCATION, v. 47, (2012), p. 334-337. - DOI: 10.1088/0031-9120/47/3/334
 36. T. Lopez-Arias; L. Gratton; G. Zendri; S. Oss, **"Forces acting on a ball in an air jet"** in PHYSICS EDUCATION, v. 46, (2011), p. 146-151. - DOI: 10.1088/0031-9120/46/2/001
 37. G. Calzà; S. Oss, **"Science is served: small experiments à la carte"** in PHYSICS EDUCATION, v. 46, (2011), p. 451-453. - DOI: 10.1088/0031-9120/46/4/014
 38. T. López-Arias; G. Zendri; L. Gratton; S. Oss, **"Using jets of air to learn about fluid dynamics"** in PHYSICS EDUCATION, v. 46, (2011), p. 373- 374. - DOI: 10.1088/0031-9120/46/4/F02
 39. G. Zendri; L.M. Gratton; T. Lopez-Arias; S. Oss, **"Flying with the right principles at hand: an interactive lab to understand the physical origin of lift"** in NUOVO CIMENTO DELLA SOCIETÀ ITALIANA DI FISICA. C, GEOPHYSICS AND SPACE PHYSICS, v. 2010 33C, (2010), p. 89-94. - DOI:10.1393/ncc/i2020-10636-7
 40. L.M. Gratton;T.López-Arias;G.Calzà;S.Oss, **"Measuring Air Density in the Introductory Lab"** in THE PHYSICS TEACHER, v. 2010, n. 48 (2010), p. 189-193.- DOI: 10.1119/1.3317455
 41. G.Calzà;T.López-Arias;L.M.Gratton;S.Oss, **"Playing with refraction"** in THE PHYSICS TEACHER, v. 48, (2010), p. 270-270. - DOI: 10.1119/1.3362005
 42. M. Guglielmino; L. Gratton; S. Oss, **"The thin border between light and shadow"** in PHYSICS EDUCATION, v. vol. 45, n. no. 4 (2010), p. 378-381.- DOI: 10.1088/0031-9120/45/4/009
 43. T. López-Arias; L. M. Gratton; S. Bon; S. Oss, **"Back of the Spoon" Outlook of Coanda Effect** in THE PHYSICS TEACHER, v. 47, n. 8 (2009), p. 508-512. - DOI: 10.1119/1.3246468
 44. G. Calzà; L.M. Gratton; T. López-Arias; S. Oss, **"Easy test calculates air's weight"** in PHYSICS EDUCATION, v. 44, n. 1 (2009), p. 14-16. -DOI: 10.1088/0031-9120/44/1/013
 45. T. López-Arias; G. Calzà; L. M. Gratton;S. Oss, **"Mirages in a bottle"** in PHYSICS EDUCATION, v. 44, n. 6 (2009), p. 582-588. -DOI: 10.1088/0031-9120/44/6/002
 46. F. Logiurato; L. M. Gratton; S. Oss, **"Simulazione ottica della diffrazione da cristalli secondo Debye-Scherrer"** in GIORNALE DI FISICA DELLA SOCIETÀ ITALIANA DI FISICA, v. 50, n. 1 (2009), p. 3-12. -DOI: 10.1393/gdf/i2008-10085-3

47. F. Logiurato; L. M. Gratton; S. Oss, **"Simulazione ottica della diffrazione da cristalli secondo Laue"** in *GIORNALE DI FISICA DELLA SOCIETÀ ITALIANA DI FISICA*, v. 49, n. 4 (2009), p. 241-253. –DOI: 10.1393/gdf/i2008-10078-2
48. L. M. Gratton; T López-Arias; G. Calzà; S. Oss, **"The Whiteness of Things and Light Scattering"** in *PHYSICS EDUCATION*, v. 44, n. 4 (2009), p. 411-414. –DOI: 10.1088/0031-9120/44/4/011
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Selected conference contributions in education research (last 15 years)

1. Oss S. **Gioie e dolori della termografia infrarossa**, 106th SIF Conference 2020, Milano (invited)
2. Bonino R, De Ambrosis A, Levrini O, Malgieri M, Mezzasalma A.M, Morandi E, Onorato P, Oss S, Rosi T, Tasquier G, **Equilibrio di genere nei corsi di laurea in Fisica: Prospettive di un'indagine PLS**, 106th SIF Conference 2020, Milano
3. T. Rosi, P. Onorato, S. Oss **Augmented Reality Active Learning (AnReAL) activities for exploring motion concepts**. GIREP Webinar 2020, Malta
4. Onorato P, Malgieri M, Salmoiraghi A, Polesello M, Oss S, **Una sequenza di esperimenti e modelli per afferrare la strana natura della luce**, 105th SIF Conference 2019, L'Aquila
5. T. Rosi, P. Onorato, S. Oss **Apprendimento della cinematica basato su Augmented Active Learning Activities**. 105th SIF Conference 2019, L'Aquila
6. Onorato P, De Ambrosis A, Malgieri M, Oss S. **Motivazioni, aspettative e autoefficacia. Alla ricerca delle ragioni della differenza di genere nei corsi di Fisica**, 105th SIF Conference 2019, L'Aquila
7. T. Rosi, P. Onorato, S. Oss, **Learning motion concepts using Augmented Reality Active Learning (AnReAL) activities**, GIREP Conference 2019, Budapest, Hungary
8. P. Onorato, M. Malgieri, M. Polesello, A. Salmoiraghi, S. Oss, **Dal mondo del caso alle leggi fisiche: modelli giocattolo per collegare la comprensione microscopica e macroscopica dei fenomeni fisici**, 104th SIF Conference 2018, Arcavacata di Rende
9. P. Onorato, M. Malgieri, M. Polesello, A. Salmoiraghi, S. Oss, **The Augmented Laboratory: un nuovo setup di Realtà Aumentata per il laboratorio di fisica**, 104th SIF Conference 2018, Arcavacata di Rende
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11. P. Onorato, M. Malgieri, M. Polesello, A. Salmoiraghi, S. Oss, **A sequence of experiments and models to grasp the strange nature of light**, GIREP Conference 2018, San Sebastian, Spain
12. T. Rosi, P. Onorato, S. Oss, **Realtà virtuale e simulazioni aumentate nel laboratorio di fisica**, 103rd SIF Conference, 2017, Trento
13. T. Rosi, P. Onorato, S. Oss, **A virtual and augmented reality setup for physics education**, GIREP Conference 2017, Dublin, Ireland

14. T. Rosi, P. Onorato, S. Oss **THE AUGMENTED LABORATORY – 3D, MULTIPLE OBJECT TRACKING** , GIREP Conference 2017, Dublin, Ireland
15. T. Rosi, P. Onorato, S. Oss, M. Malgieri, A. De Ambrosis **Studiare i colori con uno smartphone** (*national award as the best educational contribution* to the 102nd Italian Physical Society Conference, 2016, Padova)
16. S. Oss, T. Rosi, A. Brunello, **Didattica della fisica universitaria oltre la fisica**, invited talk, 102nd SIF Conference, 2016, Padova.
17. T. Rosi, S. Oss, P. Onorato, M. Malgieri **Fifty shades of colour**, GIREP Conference 2016, Krakow, Poland
18. T. Rosi, P. Onorato, M. Malgieri and S. Oss **Quantitative measurements of RGB and CMYK colours with a homemade spectrophotometer** GIREP Conference 2016, Krakow, Poland
19. T. Rosi, P. Onorato, S. Oss **Discussing fundamental topics of Quantum Physics using visualizations of bound states** GIREP Conference 2016, Krakow, Poland
20. Balzano E., De Ambrosis A., Levrini O., Michellini M., Oss S., Sperandeo Mineo R.M. "TAVOLA ROTONDA: **Formazione degli insegnanti in fisica: stato dell'arte, indicazioni europee, aspetti d'innovazione, problemi aperti e linee di ricerca future**". XCVIII Congresso Nazionale SIF 2012, Napoli, 2012
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22. S. Oss **"Physics on the iPad"**, IV Ogólnopolskie Seminarium „Komputer w Szkolnym Laboratorium Przyrodniczym” - invited lecture - Torun -Poland, 2011
23. S. Oss **"Physics of flight"**, IV Ogólnopolskie Seminarium „Komputer w Szkolnym Laboratorium Przyrodniczym” – invited plenary inaugural talk - Torun -Poland, 2011
24. S. Oss, **"Il nuovo centro della scienza di Trento. Quali fisica raccontare?"**, invited talk, XCVI Congresso Nazionale SIF 2010, Bologna, 2010
25. G. Zendri, L.M. Gratton, T. López-Arias S. Oss, **"Flying with the right principles at hand: an interactive lab to understand the physical origin of lift"**, special interactive invited poster, MPTL-13, Udine, 23- 2009
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31. C. Tarsitani; S. Oss; F. Logiurato, **"Particles and waves: from classical to quantum physics"** in ICPE 2007, Marrakech, Morocco, 2007
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33. B. Danese; F. Logiurato; S. Defrancesco; L. Gratton; S. Oss; R. Guardini; R. Tarabelli; N. Capra, **"Atomic Physics for Pupils: a Hands-On Lab"** in Informal learning and Public Understanding of Physics, Third International GIREP Seminar 2005, Ljubljana, Slovenia: University of Ljubljana, Faculty of Mathematics and Physics, Jadranska 19, 1000 Ljubljana, Slovenia, 2006, p. 126-132. - ISBN: 9616619012.
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39. S. Oss, **"Giochi di fisica per (non solo) fisici"** in Comunicare Fisica, Frascati: INFN, 2005. Frascati (RM),

- 2005, invited
40. B. Danese, F. Logiurato, S. Defrancesco, L. Gratton, S. Oss, R. Guardini, R. Tarabelli, N. Capra **Teaching about Electrons, Atoms and Molecules: How and Why** 1st European Physics Education Conference, Bad Honnef, DR July 2005
 41. S. Oss **Getting Science and Art in Connection: Can Physics and Music Be Brought Together to Provide Educational Tools?** EISTA 2005 – Orlando, FL, USA, 2005, invited
 42. S. Oss **Sound of physics: “Ears-on” activities for middle school** EISTA 2005 – Orlando, FL, USA, 2005
 43. S. Oss **New educational tools provided by a scientific reading of music** ICPE Durban (SA), 2004, invited

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