

# CV of Michele Maggiore

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## Personal data.

Born Aug. 1, 1963. Italian and Swiss citizen. Married, three children.

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ORCID: 0000-0001-7348-047X

## Present position.

Full Professor at the Department of Theoretical Physics, University of Geneva.

## Education.

Master in Physics at the University of Pisa (March 1986). Grade 110/110 *e lode*.

PhD in Physics at Scuola Normale Superiore, Pisa (March 1990). Grade 70/70 *e lode*.

## Academic path.

- 1987-1989. PhD student at Scuola Normale Superiore, Pisa.
- January-October 1990. Postdoc at the Institute für Theoretische Physik, University of Bern.
- October 1990-October 1991. Postdoc at TPI, University of Minnesota, Minneapolis.
- Oct. 1991- Apr. 2001. Permanent position as INFN researcher at the Pisa section of INFN.
- September 1999-May 2000. On leave as Scientific Associate at CERN, Theory Division.
- Apr. 2001-present: Full professor at the Department of Theoretical Physics, Physics Section, University of Geneva. (July 2011-July 2017: Head of the Physics Section, University of Geneva).

**Research interests.** I am a theoretical physicist with a broad spectrum of interests. My original background is in quantum field theory. Since the mid 1990s my interests moved toward classical and quantum gravity, and gravitational-wave physics, and in the last two decade my original research has been largely devoted to gravitational waves, cosmology, dark energy, and modified gravity. Currently my main interest, on the observational side, is in the *Einstein Telescope (ET)*, the proposed successor of Virgo. I am member of the ET Executive Board; I contributed to setting up and defining the scope and mission of the ET Observational Science Board, and I currently co-chair it (the OSB currently has about 450 members); in this role, I contribute to coordinating all the theoretical/observational work related to ET. I am also member of the *LISA collaboration*, where I contribute to the Cosmology Working Group.

**Publications.** I am the author of about 150 papers. The full publication lists can be obtained from the InSpire database, <https://inspirehep.net/literature?sort=mostrecent&size=25&page=1&q=a%20m.maggiore.1>, or from ORCID <https://orcid.org/0000-0001-7348-047X>. I have also written four books:

- *M. Maggiore, "A Modern Introduction to Quantum Field Theory," Oxford University Press, 2005, 291 pages.*
- *M. Maggiore, "Gravitational Waves. Vol. 1: Theory and Experiments," Oxford University Press, 2007, 554 pages.*
- *M. Maggiore, "Gravitational Waves. Vol. 2: Astrophysics and Cosmology," Oxford University Press, 2018, 848 pages.*

- *M. Maggiore, “A Modern Introduction to Classical Electrodynamics,” Oxford University Press, 2023, 448 pages.*

**Research group.** My group is currently composed by Stefano Foffa (permanent staff member), Enis Belgacem (postdoc) Francesco Iacovelli and Niccolò Muttoni (PhD students). Together with the groups of R. Durrer, A. Riotto, M. Kunz and C. Bonvin, we make up the Geneva Cosmology Group, <http://cosmology.unige.ch>.

I have been the supervisors of 18 PhD students, and I currently follow two PhD students. Among them, some notable former PhD students are *Alessandra Buonanno* (thesis at Pisa University, 1996; presently director of the Max Planck Institute for Gravitation, Potsdam; recipient of the ICTP Dirac Medal, of the Balzan Prize, and of several other important distinctions); *Alberto Nicolis* (thesis at Scuola Normale Superiore, Pisa, 2003; now associate professor at Columbia University, NY); *Stefano Foffa* (thesis at Pisa University, 2000; permanent staff member at Geneva University), *Riccardo Sturani* (thesis at Scuola Normale Superiore, Pisa, 2002; permanent staff member at Instituto de Fisica Teorica, UNESP, Sao Paulo, Brazil), *Giulia Cusin* (thesis at University of Geneva, 2017; permanent CNRS position at APC, Paris) and *Enis Belgacem* (thesis at University of Geneva, 2020).

**Administrative duties.** I have a significant experience in management, as well as in outreach activities. In particular:

- I served two terms (2011-2014 and 2014-2017) as President of the Physics Section of the University of Geneva. Among my duties, I was responsible for the academic and administrative direction of the Physics Section (which comprises four Departments), and I represented the Physics Section at the level of Faculty of Sciences. Upon consultation with the Board of Directors of our four Departments, I was responsible for the budget of the Section. I have been the President of the Committee that plans the scientific future of the Physics Section and the opening of permanent positions. As a member of the “Conseil Decanal”, I contributed to the management of the Faculty of Sciences. I also served as vice-President of the Physics Section for the terms 2005-2008 and 2008-2011. In 2002-2005 I served as president of the Committee which deals with all the issues concerning the teaching activity, and in this role I organized the transition to the so-called “Bologna system” (Bachelor+Master+PhD).
- I am one of the founders of the Center of Astroparticle Physics (CAP) at the University of Geneva, which brings together the competences in astro-particle physics and cosmology of the Department of Theoretical Physics, the Department of Nuclear and Particle Physics (both at the Physics Section) and the Department of Astronomy of Geneva University.
- I am one of the founders and the current Coordinator of the recently created (2022) Gravitational Wave Science Center (GWSC) <https://gwsc.unige.ch/> at the University of Geneva. The Center fosters synergies in gravitational wave science between the Department of Theoretical Physics, the Department of Nuclear and Particle Physics (both at the Physics Section) and the Department of Astronomy of Geneva University.
- Member (or president) of panels for nominations of professors at UniGe (including the nominations of two full professor and two associate professor in physics, one full professor in physics/biochemistry). Member of the committee for the selection of a full professor at the Gran Sasso Science Institute, and of a full professor at ETH Zürich.

**Outreach activities.** I am strongly engaged in activities for the general public and schools. In particular;

- I am the co-founder of the Athéna program, a program that allows students in the last two years of College in the Geneva Canton to follow a course in Physics or Mathematics at Geneva University for a semester, with the help of a tutor, and with the possibility of validating the exam and obtaining the corresponding credits (<https://www.unige.ch/sciences/fr/faculteetcite/programme-athena/>). For this program, with A. Müller, we shared the 2016 Prize for Pedagogical Innovation of Geneva University.
- I have been member of the committee that steers the “PhysiScope”, an initiative of the Physics Section that performs physics demonstrations for school classes and for the general public.<sup>1</sup>

<sup>1</sup>The PhysiScope is a remarkably successful initiative for communicating with the general public and contributing to developing the passion for Science in children and young people. Since its creation in 2008, over 25'000 visitors have come to the Physics Section to participate at our physics shows, with demonstrations performed daily for the whole year. The main target are students of schools of the Geneva canton, of all ages. In the last few years the PhysiScope has also obtained a significant notoriety at the European level, and is regularly receiving classes from abroad. We have also prepared a series of 60 TV shows in collaboration with the national channel RTS2, aimed at children about 8-years old.

- I often give talks for the general public, and occasionally interviews in Swiss national newspapers, radio and TV on scientific subjects. The recordings of some talks for general public, or some TV or radio broadcasts are still available from my homepage.

**Organization of conferences.** Some recent conferences that I contributed to organizing:

- “First Cosmic Explorer Meeting”, Oct. 2020, <https://sites.psu.edu/cosmicexplorermeeting/>
- “11th Einstein Telescope Symposium”, 30 Nov-3 Dec. 2020, <https://indico.in2p3.fr/event/20576/overview>
- “12th Einstein Telescope Symposium”, Budapest 6-8 June 2022, <https://indico.ego-gw.it/event/411/>
- “12th Einstein Telescope Symposium”, Cagliari 8-12 May 2023, <https://indico.ego-gw.it/event/562/>

**Research projects as leading investigator**

- “Gravitational waves, cosmology and astrophysics”, FNS 200021-101607, 2003-2005, CHF 197’344
- “Gravitational waves, cosmology and astrophysics”, FNS 200020-109584, 2005-2007, CHF 184’200
- “Data analysis for Gravitational-Wave Detectors”, Fondation Boninchi, 2006-2008, CHF 250’000
- “Gravitational waves, cosmology and astrophysics”, FNS 200020-117633, 2007-2009, CHF 212’160
- “Gravitational waves, cosmology and large scale structure formation in the Universe”, FNS 200020-126507, 2009-2010, CHF 65’720.
- “Gravitational waves, cosmology and astrophysics”, FNS 200020-131830, 2010-2013, CHF 308’100.
- “Gravitational waves, cosmology and astrophysics”, FNS 200020-149999, 2013-2016, CHF 361’220.
- “Gravitational waves, cosmology and astrophysics”, FNS 200020-169018, 2016-2019, CHF 376’839.
- “Gravitational waves, cosmology and astrophysics”, FNS 200020-191957, 2020-2024, CHF 644’570.
- “GW-Learn: Deciphering the Gravitation-Wave Universe using the Next-Generation Observatories and Machine Learning”, (co-PI, together with A. Fragkos, Thomas Hoffman and Lucio Mayer) Sinergia FNS grant CRSII5-213497, 2023-2027, CHF 3’185’773.