

CURRICULUM VITAE

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Nationality: Italian

Date of birth: 20 December 1980



➤ Education

03/2009: PhD in Physics, summa cum laude, Università degli Studi di Catania, title: “*Detection of Earth-like planetary transits in the presence of stellar microvariability*”, supervisors: Dr. Antonino F. Lanza and Prof. Alessandro C. Lanzafame.

07/2005: Master's Degree in Physics, summa cum laude, Università degli Studi di Catania. Thesis title: “*Cyclic variability of the Sun as a star: analysis of the Total Irradiance as measured from satellites*”, supervisors: Dr. Antonino F. Lanza and Prof. Marcello Rodonò.

07/1999: High School Diploma, “Liceo Classico M. Cutelli”, Catania, with full marks

➤ Experience

Since 12/2016: INAF (Istituto Nazionale di AstroFisica) staff researcher at the Osservatorio Astrofisico di Torino

02/2014-11/2016: FP7-SPACE ETAEARTH post-doc position at the INAF - Osservatorio Astrofisico di Torino to work on the characterization of terrestrial planetary systems with the *Kepler* space telescope and the HARPS-N (High Accuracy Radial velocity Planet Searcher for the Northern hemisphere) spectrograph mounted on the Italian 3.6 m Telescopio Nazionale Galileo (TNG) in La Palma island

02/2012 - 01/2014: INAF post-doc position at the Osservatorio Astrofisico di Torino for the planning, performance, and analysis of HARPS-N@TNG observations to search for low-mass planets and to characterize *Kepler* small-size planetary candidates, within the HARPS-N/GTO (Guaranteed Time Observations) and INAF/GAPS (Global Architecture of Planetary Systems) consortia

01/2011 - 12/2011: CNES (Centre National d'Études Spatiales) postdoctoral fellowship at the Laboratoire d'Astrophysique de Marseille (France) to work on the data obtained by the CoRoT (Convection Rotation and planetary Transits) space telescope for the search for and characterization of CoRoT planetary systems, and for the study of the magnetic activity of CoRoT planet-hosting stars

04/2009 - 12/2010: CNRS (Centre National de la Recherche Scientifique) post-doc position at the Laboratoire d'Astrophysique de Marseille as scientist responsible for the CoRoT Alarm Mode aimed at the early detection of planetary transits in the CoRoT N1-level data

10/2008 - 03/2009: CNRS post-doc position at the Laboratoire d'Astrophysique de Marseille to work on the analysis of CoRoT data

06/2007 - 01/2008: Visiting the Institut d'Astrophysique Spatiale (Université Paris-Sud XI, Paris-Orsay, France) to work on transit detection techniques for the analysis of CoRoT data

10/2005 – 11/2005: graduate student grant at INAF – Osservatorio Astrofisico di Catania for the development of models of the Total Solar Irradiance variations and their application to solar-type stars

➤ **Main fields of research/interest:**

- Detection, characterization, and properties of exoplanetary systems;
- Exoplanetary atmospheres;
- Planet occurrence rates;
- Magnetic activity of late-type stars;
- Star-planet interactions

➤ **Scientific contribution**

- > 150 refereed journal papers with > 6000 citations; > 15 non-refereed publications (conference proceedings); ORCID: <https://orcid.org/0000-0002-6177-198X>
- h-index = 42; m-index=2.7; g-index = 70 (source: SAO/NASA ADS)
- > 50 talks at national or international conferences/workshops, scientific institutes and universities

➤ **Specific scientific responsibilities/tasks and memberships**

- Member of the Ariel (Atmospheric Remote-sensing Infrared Exoplanet Large-survey) space mission team (2021-)
- Leader of the HARPS-N/GTO (High Accuracy Radial velocity Planet Searcher for the Northern hemisphere / Guaranteed Time Observations) sub-program on the long-term RV monitoring of *Kepler/K2* systems (2019-)
- GAPS (Global Architecture of Planetary Systems) Atmospheres Project Scientist (10/2017-)
- Member of the GAPS Science Team (10/2017-)
- Member of the HARPS-N/GTO Target Selection Team to plan the radial-velocity follow up of *Kepler/K2* and *TESS* planetary candidates with HARPS-N (2015-)
- Member of the HARPS-N/GTO Consortium (2012-)
- Member of the GAPS consortium with top-level and second-level Work Package responsibilities (2012-)
- Member of the PLATO (PLANetary Transits and Oscillations of stars) space mission team (2010-)
- Member of the CoRoT (Convection Rotation and planetary Transits) Science Team (2010-2012)
- Scientist in charge of the Alarm Mode of the CoRoT space mission for the early detection of planetary transits in CoRoT N1-level data (2009-2010)

➤ Professional service

- Referee for the peer-reviewed journals Astronomy and Astrophysics, Monthly Notices of the Royal Astronomical Society, The Astronomical Journal, Icarus
- Panel Member of the ESO (European Southern Observatory) Observing Programs Committee (2019)
- External reviewer of OPTICON proposals (2018 -)
- External reviewer for the Royal Astronomical Society (RAS) Research Fellowships (2018)
- Member of the Scientific Organizing Committee of the EPRV (Extreme Precision Radial Velocity) IV Meeting (Grindelwald, 17/03-21/03/2019)
- Responsible for the organization of seminars at INAF-OATo (01/2017 - 12/2018)
- Responsible for the organization of the AGRET (Astrometry, Galaxy, Relativity, Exo-planets and related Technology) internal meetings at INAF-OATo (09/2021 -)

➤ Awards

- CNES (Centre National d'Études Spatiales) postdoctoral fellowship on the topic "Detection and characterization of CoRoT transiting planets - Magnetic activity of planet-hosting stars" at the Laboratoire d'Astrophysique de Marseille (2011)
- Prize "Accueil de Chercheurs" of € 3000 by the City of Marseille on 5 November 2009 for the quality of scientific work pursued as a foreign researcher in Marseille

➤ Awarded grants

- PRIN (Progetto di Ricerca di Interesse Nazionale) INAF 2019 "The HOT-ATMOS Project: characterizing the atmospheres of hot giant planets as a key to understand the exoplanet diversity" as Principal Investigator (PI), € 153732
- ASI-INAF grant 2018 "Time-dependent high-energy stellar radiation and planetary atmosphere interaction" (THEStellarPATH), Responsible of WP3 (PI: Dr. A. Maggio), € 167311
- INAF PhD grant on "Structural and Atmospheric Characterization of Transiting Planetary Systems" at the University of Turin, 2017-2020, € 27961, co-PI (other co-PI: Dr. A. Sozzetti)

➤ Selected observing proposals

- Co-I of the Long-Term Proposal "The PEPsi/LBT Exoplanet Transit Survey (PEPSI)", 30 nights/yr with PEPsi@LBT, 2021-2022
- Co-writer/Co-I of the Long-Term Proposal "GAPS2: the origin of planetary system diversity", 68 nights/yr with GIARPS@TNG, 2018-2023
- PI of the Proposal "A search for low-mass planets in the habitable zone of a nearby and quiet M dwarf", 2 nights with HARPS-N@TNG, 2018
- PI of the Proposal "Probing the atmosphere of the hot Jupiter HD102195b with Giano", 2 nights with GIANO@TNG, 2016
- PI of the Proposal "A Giano view of the dayside of tau Bootis b", 2 nights with GIANO@TNG, 2016
- Co-writer/Co-I of the Proposals "Characterizing the Global Architecture of Planetary Systems with HARPS-N", ~65 nights/yr with HARPS-N@TNG, 2012-2017
- Co-I of the Proposals "Characterization of transiting planets with SOPHIE@OHP", ~30 nights/yr with SOPHIE@OHP, 2012-2015

➤ **Teaching and supervision**

- February 2022 -: National qualification for teaching as Associate Professor at Italian Universities (academic recruitment field 02/C1: Astronomy, Astrophysics, Physics of Earth and planets)
- Since November 2020: Post-doc (G. Guilluy) supervisor
- Since November 2013: Bachelor's Theses main supervisor (M.C. Maimone, N. Cibrario, S. Bruna, R. Stognone, A. Massa) and co-advisor (E. Pezzetta), Master's Theses main supervisor (S. Crespi, R. Bongiolatti, R. Stognone, A. Massa) and co-advisor (S. Bruna)
- February-March 2022: Training course on exoplanets for high-school teachers organized by the Accademia delle Scienze di Torino
- Since February 2020: Training courses on exoplanets for high-school teachers organized by INAF-OATo
- October-November 2010: Tutoring of general Mathematics to undergraduate students of the Classes Préparatoires Polytech Marseille (France)
- April 2006-May 2007: Private tutoring of general Mathematics courses to undergraduate students of the University of Catania at the Camplus D'Aragona residence

➤ **Selected interviews, press releases and articles related to my publications:**

- November 2021: interview together with Dr. L. Spina about exoplanet-eating stars ("Caccia alle stelle cannibali") on BBC Science Italy magazine
- 7 April 2021: A migrating exoplanet as revealed by its atmosphere ("Esopianeta migrato, lo rivela la sua atmosfera"), <https://www.media.inaf.it/2021/04/07/esopianeta-migrato-hd209458b/>
- 9 June 2020: Helium in the atmosphere of HD189733b ("Elio bollente nell'atmosfera di HD189733b"), <https://www.media.inaf.it/2020/06/09/elio-bollente-nellatmosfera-di-hd-189733b/>
- 27 September 2019: Heavy air on an exoplanet? HARPS-N can answer ("Aria pesante sull'esopianeta? Te lo dice HARPS-N", <https://www.media.inaf.it/2019/09/27/harps-kelt-9b/>, <http://www.tng.iac.es/news/2019/09/29/arm/>)
- 27 June 2019: Water worlds galore, <https://www.nature.com/articles/s41550-019-0846-4>
- 23 April 2019: Methane on an hot Jupiter ("C'è metano su quel gioviano", <https://www.media.inaf.it/2019/04/23/ce-metano-su-quel-gioviano/>, http://www.tng.iac.es/news/2019/04/22/jupiter_methane/)
- 4 February 2019: Different twin super-Earths ("Ecco le due super-terre gemelle ma diverse", <https://www.media.inaf.it/2019/02/04/kepler-107-superterre-gemelle/>; http://www.ansa.it/canale_scienza_tecnica/notizie/spazio_astronomia/2019/02/07/da-una-catastrofe-cosmica-due-pianeti-gemelli-diversi-_115f0ba7-1e76-4b1a-9a62-887016c960db.html; <http://www.tng.iac.es/news/2019/02/04/giant-impact/>)
- 11 December 2018: the identity card of Kepler-1657b ("La carta d'identità di Kepler-1657b" <https://www.media.inaf.it/2018/12/11/kepler-1657b-aldo-bonomo/>)
- 18 August 2018: "More water than expected on extrasolar planets" ("Acqua più abbondante del previsto nei pianeti extrasolari") http://www.ansa.it/canale_scienza_tecnica/notizie/spazio_astronomia/2018/08/18/acqua-piu-abbondante-del-previsto-nei-pianeti-extrasolari_cef5fa51-181b-41d1-a356-672779a6f6ce.html
- 02 April 2018: interview on Rai-1 about the Earth-size planet with a Mercury-like composition K2-229b, http://gallery.media.inaf.it/main.php/v/video/inafintv/Rai1/20180402_unomattina.mp4.html
- 26 March 2018: A super-Earth with a super nucleus ("Una super-Terra con un super nucleo", <https://www.media.inaf.it/2018/03/26/una-super-terra-con-un-super-nucleo/>)
- 19 March 2018: A habitable planet hides as its star has a tantrum ("La stella fa le bizze e il pianeta si nasconde", <https://www.media.inaf.it/2018/03/19/kepler-2-3/>; <http://www.tng.iac.es/news/2018/03/21/k2/>)

19 January 2018: The ultra short-period super-Earth K2-141b (“K2-141b: la Super-Terra dall'orbita ultra-breve”, <http://www.media.inaf.it/2018/01/19/k2-141b-orbita-ultra-breve-e-temperature-infernali/>; <http://www.tng.iac.es/news/2018/01/29/k2-141/>)

7 April 2017: The violent migration of hot giants (“La migrazione violenta dei giganti caldi”, <http://www.media.inaf.it/2017/04/07/la-migrazione-violenta-dei-giganti-caldi/>)

3 December 2015: interview with mediainaf about false positives among the Kepler giant planetary candidates (“Credevo fosse un Giove e invece era una stella”, <http://www.media.inaf.it/2015/12/03/kepler-falsi-positivi/>, <http://gallery.media.inaf.it/main.php/v/voci/interviste/20151203-aldo-bonomo.mp3.html>)

27 January 2015: “Ah oui, je suis TrES léger!” (<http://www.media.inaf.it/2015/01/27/oh-oui-je-suis-tres-leger/>; <http://www.tng.iac.es/news/2015/02/03/exo-planet/>)

17 September 2014: An inverted planetary system (“Un sistema planetario invertito”, <http://www.media.inaf.it/2014/09/17/un-sistema-planetario-invertito/>, <http://www.tng.iac.es/news/2014/09/17/kepler101/>)

2 July 2014: Different Twins (“Gemelli diversi”, <http://www.media.inaf.it/2014/07/02/gemelli-diversi/>; <http://www.tng.iac.es/news/2014/07/03/two-planets/>)

2 June 2014: A megaEarth found by HARPS-N (“Una megaterra per HARPS-N”, <http://www.media.inaf.it/2014/06/02/una-megaterra-per-harps-n/>; <http://www.tng.iac.es/news/2014/06/02/harps-megaeearth/>)

14 June 2010: Rich exoplanet harvest for CoRoT (<http://cnes.fr/fr/web/CNES-fr/8576-gp-7-nouvelles-planetes-decouvertes-par-corot.php>)

14 June 2010: interview together with prof. M. Deleuil and Dr. A. Santerne on France 3 about the discovery of seven CoRoT exoplanets (<http://mediterranee.france3.fr/info/provence-alpes/marseille--decouverte-d-exoplanetes-63611598.html?onglet=videos>)

➤ **Public outreach**

- Conferences and/or laboratories on exoplanets for high-school students at high-secondary schools in Torino (liceo scientifico Majorana, liceo scientifico Avogadro, liceo scientifico Sant'Anna, liceo scientifico Istituto Sociale, primo liceo artistico statale), Ventimiglia (liceo scientifico Aprosio), Savignano (liceo scientifico Marie Curie), Catania (istituto istruzione superiore Vaccarini), and at the Osservatorio Astrofisico di Torino, since 2013
- Conferences and laboratories on exoplanets within the MasterClass of Astronomy and Astrophysics for high-school students, Università di Torino (28 March 2019, 6 April 2018, 4 April 2017, 22 March 2016)
- Development of laboratories on exoplanets for high-school students, in collaboration with the Planetarium InfiniTo (see <https://ricerca.repubblica.it/repubblica/archivio/repubblica/2018/04/11/e-allalba-si-punta-il-telescopio-sul-sole55.html?ref=search>), since 2017
- Cycle of meetings, together with Dr. G. Puglisi, on "Il più grande spettacolo dopo il Big Bang" ("The greatest show after the Big Bang") for the university students of the CAMPLUS colleges, online meetings (April-May, 2020)
- Conference "I pianeti extrasolari. Altre terre nell'Universo? ("The extrasolar planets. Other earths in the Universe?") at the Abbazia di Mirasole (Milano) on 19 October 2019
- Conference “Dalla Terra alla Luna: 50 anni dallo sbarco” (“From the Earth to the Moon: 50 years since the Moon landing”) for the high-school students of the liceo scientifico Sant'Anna (Torino, 29 March 2019)
- Contribution to the realization of the exhibition “Exoplanets: nuove terre inesplorate, l'antico mistero della vita” (“Exoplanets: new unexplored Earths, the old mystery of life”) in collaboration with the Euresis Association, since August 2018 (see <https://euresis.org/mostre/2018-exoplanets/>);

related conferences in Torino (Piazza dei Mestieri on 17 Sept 2020, Centro Culturale Frassati on 4 May 2019)

- Public lectures at the Planetarium InfiniTo (Pino Torinese):

“La storia del telescopio spaziale Kepler, il più grande cacciatore di esopianeti” (“The history of the Kepler telescope, the greatest exoplanet hunter”) 18 November 2018;

“Esopianeti, alla ricerca di un'altra Terra” (“Exoplanets, discovering an Earth twin”) , 17 October 2016

- Participation to the “Astronomy Variety Show” at the Planetarium InfiniTo (Pino Torinese, 7 October 2017)

- Participation to “The night of researchers”, Torino, since 2013

- Lectures and guided tours of the solar telescope at the Astrophysical Observatory of Catania for high-school students (Catania, 2006-2007)

➤ **Talks at international or national meetings, conferences and workshops:**

22-24/07/2021: “Mathematics for Non-stationary Signals and Applications in Geophysics and Other Fields”, L'Aquila, Italy

Title: *Treatment of non-stationary noise signals for the detection and characterization of extrasolar planets*

21-23/10/2019: “Congresso Nazionale di Astrochimica e Astrobiologia (proto-) planetarie” (national congress of proto-planetary and planetary astrochemistry and astrobiology), Trieste, Italy

Title: *The composition of small planets with HARPS-N@TNG*

9/02/2018: “5 years of HARPS-N Science Workshop”, La Palma Island, Spain

Title: *Investigating giant planet migration history with HARPS-N eccentricity and obliquity measures*, Invited talk

12-15 September 2017: “Nuovi Attori per Nuovi Scenari dell'Astrofisica” (new actors for new scenarios of astrophysics), LXI Congresso Nazionale della Società Astronomica Italiana, Padova, Italy

Title: *La straordinaria diversità delle architetture dei sistemi planetari* (the extraordinary diversity of exoplanetary system architectures), Invited talk

16-21 July 2017: “Transiting Exoplanets”, Keele, UK

Title: *Characterization of the K2-3 planetary system with 300 HARPS and HARPS-N radial velocities*

Title: *A Giano view of the atmosphere of the transiting hot Jupiter HD189733b*

1-3 March 2017: “La missione e le prospettive scientifiche del TNG nell'astrofisica del 2020”, (the mission and scientific perspectives of the TNG for the astrophysics in 2020), Padova, Italy

Title: *GAPS-2 The Origins: a new frontier with GIARPS*

21-23 June 2016: “4th CHEOPS Science Workshop”, Geneva, Switzerland

Title: *CHEOPS and the search for habitable planets*

5-9 October 2015: “Twenty years of giant exoplanets”, Observatoire de Haute Provence, France

Title: *Structure and evolution of transiting giant planets: a Bayesian homogeneous determination of orbital and physical parameters*

29 June-03 July 2015: “From Super-Earths to Brown Dwarfs: who's who?”, Paris, France
Title: *Structure and evolution of transiting giant planets: a Bayesian homogeneous determination of orbital and physical parameters*

5-7 November 2014: “La ricerca dei pianeti extrasolari in Italia” (the search for exoplanets in Italy), Rome, Italy
Title: *Results from CoRoT and Kepler*, Invited talk

5-7 November 2012: “GREAT-ESF Workshop. Gaia and exoplanets: great synergies on the horizon”, Turin, Italy
Title: *The impact of Gaia on the planet occurrence rates as derived from the space-based transit surveys Kepler and CoRoT*

19-21 October 2011: Atelier “Magnétisme stellaire et Planètes extrasolaires” (stellar magnetic activity and extrasolar planets), Observatoire de Haute Provence, France
Title: *L'activité et les mesures de transit* (stellar activity and transit observations)

14-17 June 2011: “Second CoRoT international Symposium”, Marseille, France
Title: *Frequency of small planets in the CoRoT fields of view*

16-18 Sept 2009: “Unsinkable Planets: telluric planet detection and stellar activity”, Exeter, UK
Title: *Detection of planetary transits in the presence of stellar microvariability*

➤ **Oral contributions at the following restricted meetings:**

17-19 November 2021: 18th GAPS Progress Meeting, online

15-17 June 2021: HARPS-N GTO Science Meeting, online

9-11 December 2020: 17th GAPS Progress Meeting, online

4-6 May 2020: 16th GAPS Progress Meeting, online

4-6 December 2019: 15th GAPS Progress Meeting, Catania, Italy

8-10 May 2019: 14th GAPS Progress Meeting, Trieste, Italy

28-30 November 2018: 13th GAPS Progress Meeting, Napoli, Italy

14-16 May 2018: 12th GAPS Progress Meeting, Cagliari, Italy

8-10 November 2017: 11th GAPS Progress Meeting, Milano, Italy

15-17 May 2017: 10th GAPS Progress Meeting, Palermo, Italy

15 February 2017: 3rd ETAEARTH Progress Meeting, Bruxelles, Belgium

17-18 January 2017: GAPS Meeting on Atmospheres and Young Planets, Rome, Italy

24-26 October 2016: 9th GAPS Progress Meeting, Aosta, Italy

15-16 June 2016: Meeting INAF-Macroarea 2: Stelle, popolazioni stellari e mezzo interstellare, Bologna, Italy

6-8 April 2016: 8th GAPS Progress Meeting, Padova, Italy

15 February 2016: 2nd ETAEARTH Progress Meeting, Bruxelles, Belgium

4-7 November 2015: 7th GAPS Progress Meeting, Catania, Italy

22-24 April 2015: 6th GAPS Progress Meeting, Trieste, Italy

2 December 2014: PLATO 2.0 Transit Detection Workshop, Catania, Italy

22-24 October 2014: 5th GAPS Progress Meeting, Naples, Italy

29-30 Avril 2014: 4th GAPS Progress Meeting, Milan, Italy

24-25 October 2013: 3rd GAPS Progress Meeting, Palermo, Italy

26-27 February 2013: Joint meeting of the ETAEARTH Consortium and HARPS-N/GTO Science Team, Rome, Italy

4-5 February 2010: CoRoT CEST Meeting, Paris, France

1-2 February 2010: CoRoT Transit Modelling Meeting, Berlin, Germany

4-5 November 2009: CoRoT CEST Meeting, Paris, France

8-9 June 2009: CoRoT CEST Meeting, Paris, France

➤ **Skills**

- Scientific programming: IDL, Fortran, C; experience in High Performance Computing on grid infrastructures

- Observing (> 100 nights) with high-resolution spectrographs such as HARPS-N/GIANO-B@TNG (Observatorio del Roque de Los Muchachos, La Palma, Canary Islands), SOPHIE@OHP (Observatoire de Haute Provence, Saint-Michel l'Observatoire, France) and HARPS@ESO (European Southern Observatory, La Silla, Chile)

- Languages: Italian (mother language), English (advanced), French (pre-advanced)