

## PERSONAL INFORMATION

## Crescenzo Tortora

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Gender Male | Date of birth 5 March 1979 | Nationality Italian

## WORK EXPERIENCE

- 01/07/20 – Present **Permanent researcher at INAF – Osservatorio Astronomico di Capodimonte, Napoli**  
Ricercatore a tempo indeterminato
- 01/10/18 – 30/06/20 **Post-doc at INAF – Osservatorio Astrofisico di Arcetri, Firenze**  
Research contract (assegno di ricerca) supported through the PRIN–SKA: *Preparing for SKA HI studies of galaxy evolution with multi-wavelength data sets* (P.I.: L. Hunt)
- 01/02/16 – 30/09/18 **Post-doc at Kapteyn Institute in Groningen**  
Supported through an NWO-VICI grant: *Probing dark-matter using strong gravitational lenses: from KiDS to Euclid* (P.I.: L.V.E. Koopmans)
- 01/11/15 - 31/01/16 **Grant at INAF – Osservatorio Astronomico di Capodimonte, Napoli**  
Grant within Fornax Deep Survey. Grant title: *Popolazioni stellari di galassie nell'ammasso della Fornace e di background nell'ambito della Fornax Deep Survey*
- 01/10/13 - 30/09/15 **Marie Curie Incoming Fellowship at INAF – Osservatorio Astronomico di Capodimonte, Napoli**  
Awarded through a competition by INAF. Supported through AstroFIIt program. Project name: *VST and VISTA view of DArk matter and Stellar populations in galaxies (ViViDAS)*
- 01/10/09 - 30/09/13 **Post-doc at Institut für Theoretische Physik, Zurich**
- 01/05/13 - 30/09/13 Post-doc funded by Swiss National Science Foundation
- 01/07/12 - 30/04/13 Grant awarded through a competition by Forschungskredit, University of Zurich
- 01/10/09 - 30/06/12 Post-doc funded by Swiss National Science Foundation
- 27/02/09 - 26/08/09 **Grant Università di Napoli Federico II, Napoli, Italy**  
Grant (borsa di studio) funded by Project Mecenass, project: *Misura di masse stellari e dinamiche in un campione locale di galassie*
- 01/02/08 - 31/10/08 **Grant (Co.Co.Pro.) at Dipartimento di Fisica ed Astronomia - Università di Catania**  
Contract (Co.Co.Pro.) funded by Consorzio Cometa, project: *Esecuzione ed analisi di Simulazioni Cosmologiche in ambiente GRID*, led by V. Antonuccio-Delogu

02/05/06 - 01/04/07 **Post-doc at INAF – Osservatorio Astronomico di Capodimonte, Napoli**

Research contract (assegno di ricerca), project: *Studio dell'evoluzione delle galassie ellittiche in ammasso a redshift intermedio attraverso spettroscopica integrale di campo VIMOS e fotometria multi-banda*

01/04/04 - 30/04/06 **Other contracts at Università di Napoli Federico II, Napoli**

03/10/05 - 30/04/06 Grant (borsa di studio), project: *Modelli e osservazioni in cosmologia*

05/07/04 - 04/06/05 Contract (Co.Co.Co.), project: *Studio della radiazione cosmica di fondo con metodi numerici*, funded by Università di Salerno, Salerno, Italy

01/04/04 - 30/06/04 Contract (Co.Co.Co.), funded by INFM

## EDUCATION AND TRAINING

2003–2005 **PhD in *Fisica Fondamentale e Applicata***

Università di Napoli Federico II, Napoli, Italy

Thesis Title: *The "dark sector" of the universe: models versus observations*

1997–2002 **Bachelor in *Fisica (Laurea vecchio ordinamento)*** (marks 110/110)

Università di Napoli Federico II, Napoli, Italy

Thesis Title: *Time delay nel lensing gravitazionale: cosmologia e modellizzazione della lente*

1992–1997 **High school diploma** (marks 60/60)

Liceo Scientifico F. Bianchi, Napoli, Italy

## RECOGNITIONS

**Abilitazione Scientifica Nazionale (ASN) per professori di II fascia**

In possession of the National Scientific Qualification to become eligible to apply for a position in an Italian University. Valid from 11/07/2018 to 11/07/2024 (art. 16, comma 1, Legge 240/10)

## INAF national competitions

Winner in the national competition for permanent research position with INAF (Macroarea 1.1, year 2019). Previously, eligible in two national competitions for permanent research positions with INAF (codes: 6RIC/MA1/OANA2012 and 10RIC/MA1/RIC05)

## Marie Curie fellowship

Incoming Mobility Fellowship awarded through a competition by INAF, within the program: FP7 Astronomy Fellowship in Italy (AstroFlt - Call 2). Name of the project: *VST and VISTA view of DArk matter and Stellar populations in galaxies (ViVIDAS)*.

## Grant from Forschungskredit

A grant of 88,000 CHF awarded through a competition at University of Zurich. Name of the project awarded: *Unveiling the alchemy of stellar populations, dark matter and galaxy evolution.*

## PERSONAL AND PROFESSIONAL SKILLS

Mother tongue Italian, Neapolitan

Other languages	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C1	C2	C1/C2

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2: Proficient user

[Common European Framework of Reference \(CEF\) level](#)

- Communication/organizational skills**
- Team work: I have worked in different teams, in Italian (Napoli, Catania, Florence) and foreign institutions (Zurich, Groningen), see details in the section [Work experience](#);
  - Mediating skills: I work on the borders between young people and researchers, I have also tutored or supervised some students (see [Tutoring and supervision](#) section);
  - Intercultural skills: I am experienced at working in a European dimension, collaborating with researchers from different countries (european, american and asian), see more details in [Science and publications](#).
  - Seminar organization: I have been part of the LOC for the organization of seminars and conferences/meetings (see in the [Organisational/managerial skills](#) section)
- Computer skills**
- Extensive use of Windows and Unix/Linux operative systems.
  - Excellent use of programs to present and analyze results, e.g. L<sup>A</sup>T<sub>E</sub>X & Wolfram Mathematica.
  - Good knowledge of HTML language and Python.
  - A good knowledge of some specific scientific software: IRAF, SExtractor, DS9, 2DPHOT, Galaxev, Galfit, Lenstool, Hyperz, Lephare, pPXF, etc.
  - Excellent knowledge of Microsoft Office, and softwares to manage images and videos (Paint, Paint Shop Pro, Gimp, Windows Movie Maker, OBS, etc.).

## SERVICE AND TEACHING

- Reviewer activity**
- **Research papers:** referee for *Science*, *Astrophysical Journal*, *Monthly Notices of the Royal Astronomical Society*, *Astrophysics and Space Science* and *Modern Physics Letters A*. See more on my [Publons profile](#)
  - **Proposals:** referee of proposals for HST (Call 25 Mid-cycle) and TNG (AOT44).
  - **Dissemination:** referee for *AIRinforma*.
  - **PhD thesis:** external examiner for the PhD thesis of A. Alabi at Swinburne University.
  - **Awards:** Examiner for *Premio Geppina Coppola*.
- Organisation/managing**
- Elected member of INAF-OAC Consiglio di Struttura, CDS (2021 - now)
  - LOC member and organizer of *Premio Geppina Coppola* (award for young researchers).
  - Organizer and chair of the Special Session 17 on "[Compact passive and massive galaxies across the Universe](#)" at EAS2020
  - Organizer and chair of the Special Session 19 on "[Crossing the characteristic mass scales in galaxy evolution](#)" at EAS2020
  - LOC member of the *Astromeeting*, the weekly seminar at Osservatorio Astronomico di Capodimonte (2013 – now)
  - LOC member of the *AstroBigné* seminars at the Osservatorio Astrofisico di Firenze (2018 – 2020)
  - LOC member of the *Wednesday Lunch talk* at the Kapteyn Institute (2016 – 2018)
  - LOC member of the "Bright & Dark Universe" workshop, Napoli, 29/01/17-02/02/17
  - LOC member of the KiDS+GAMA+VIKING meeting, Napoli, 02-03/02/2017
  - Co-organizer of the internal meeting of the project ESKAPE-HI, Firenze, 30/11/2018
  - I have led and co-led a series of short and long-term projects (see details in the section [Membership and leadership within collaborations](#))

- Tutoring and supervision**
- Co-supervisor of the master thesis of Fabrizio Gentile at Università di Napoli Federico II; title: *Fast Automated Analysis of strong gravitational lenses in the forthcoming Euclid survey using machine learning methods* (2021).
  - Supervisor of Olivier Hauterville (internship student from Aix-Marseille University) at Osservatorio Astrofisico di Arcetri; title: *Finding gravitational lenses with Artificial Intelligence* (2020).
  - Co-supervisor of the bachelor thesis of Fabrizio Gentile at Università di Napoli Federico II; title: *Ricerca di archi gravitazionali nelle survey astronomiche mediante Reti Neurali Convoluzionali* (2019).
  - Co-supervisor of the bachelor thesis of Ciro Bruscino at Università di Napoli Federico II; title: *Frazione di materia oscura nelle galassie ellittiche* (2018).
  - Co-supervisor of the bachelor thesis of Feliciana Sapiro at Università di Napoli Federico; title: *La componente di materia oscura nelle galassie ellittiche* (2018).
  - Co-promotor of E. Petrillo, PhD student at Kapteyn Institute (2016 – 2018).
  - Daily-supervisor of S. Mukherjee, PhD student at Kapteyn Institute (2016 – 2018).
  - Daily-supervisor of N. Roy, PhD student at Università di Napoli Federico II (2013 – 2016).
  - Daily-supervisor of M. Lubini, PhD student at University of Zurich (2009 – 2012).
- Observing expertise**
- I have some experience with observations at telescopes, which I list below:
- April 2019 - Observing run at IDS@INT, La Palma (Spain)
  - March 2018 - Observing run at DOLORES@TNG, La Palma (Spain)
  - April 2015 - Observing run at PNS@WHT, La Palma (Spain)
  - April 2014 - Observing run at PNS@WHT, La Palma (Spain)
- Teaching and dissemination**
- Owner of a blog about astrophysics: [Astrofisica in 1 minuto](#) (2015 – now) and of the related [podcast](#) (2021 – now)
  - Podcast interview about [artificial intelligence and Astronomy](#), Podcast [Co-Scienza](#) (18/01/2021)
  - Radio interview about [relic galaxies](#) at the Show [Talos](#), Radio Beckwith
  - Radio interview about [Physics in movies and TV Series](#) at the radio show [Notizie dallo Spazio: Episode 1](#) (11/01/2021), [Episode 2](#) (15/02/2021), [Episode 3](#) (26/04/2021), [Special episode on artificial intelligence](#) (17/05/2021).
  - Radio interview about Gravitational lenses at the radio show [Notizie dallo Spazio: Miraggi gravitazionali](#) (25/11/2020).
  - Interview for [Il Mattino di Napoli](#) (paper version): [L'Astrofisico Tortora: "Le fake news? Anche in Natura"](#) (21/11/2020)
  - [Una notte in Osservatorio: Le verità dietro le "bugie" della natura](#), outreach seminar during EU Researchers' Night (27/11/2020)
  - [Le verità dietro le "bugie" della natura](#), outreach seminar for [Futuro Remoto](#) (21/11/2020)
  - Four videos for the event [Pillole di Scienza "Science and the city"](#) during the EU Researchers' Night: [Miraggi gravitazionali](#), [Gira il mondo gira](#), [Dalle stelle alle strutture cosmiche](#), [Distanze nell'Universo](#) (2020)
  - [Interview about Artificial Intelligence and gravitational lensing](#) for the journal [Coelum Astronomia](#) (in Italian), 09/2020
  - [Miraggi gravitazionali](#), outreach video about gravity and gravitational lensing
  - [Guardare l'Universo con le lenti gravitazionali](#), outreach seminar about gravitational lensing, during the event "Viaggio nella luce", Osservatorio Astronomico di Capodimonte, Napoli, 06/02/2020
  - Open day for bachelor students at Osservatorio Astrofisico di Firenze, 11/12/2018
  - Public lectures and guide to the INAF–OAC Planetarium for students (2013 – 2015).
  - EU Researchers' Night at Monte Porzio Observatory, Rome, Italy, 25/09/2015.
  - Project "Il cielo dell'Imbriani", dedicated to Astronomy for Liceo Classico Scientifico Imbriani (Pomigliano, Napoli, Italy), 15/05/2014
  - Project "...quanta stelle 'n cielo", three evenings dedicated to the Astronomy for a public audience, organized by Dr. Michele Cantiello (Casal di Principe, Caserta, Italy), 21-23/05/2015
  - The first lesson (about Cosmology) for the II Astronomy course organized by the ASC SOTHIS, Torre del Greco, Napoli, Italy, 25/05/2012
  - Invited review about strong lensing (title: "Strong lensing, dark matter and  $H_0$  estimate"), for the "1st Workshop of Astronomy and Astrophysics for Students", Napoli, Italy, 20/04/2006
  - During the PhD, assistant in the laboratory course of Physics for Chemists.

## SCIENCE AND PUBLICATIONS

- Research topics
- Galaxy formation and evolution.
  - Star formation history, gas and dynamical properties in spiral galaxies.
  - Dynamical properties of early-type galaxies (ETGs).
  - Strong gravitational lensing in galaxies and clusters (modelling and search).
  - Stellar populations in galaxies (SPS fitting, stellar mass determination, gradients,...).
  - Modelling of mass density profiles in galaxies and clusters.
  - Dark matter content and Initial Mass Function (IMF) in ETGs.
  - Hydrodynamical and semianalytical simulations.
  - Alternative theories of gravity (e.g. f(R), MOND, Emergent gravity) in ETGs.
  - Cosmology and dark energy modelling.
- Membership and leadership within collaborations
- Core team member of the survey **StePS-WEAVE@WHT**.
  - Co-lead of WP-PPZ within the Euclid **Local Universe Working Group (LU-SWG)**.
  - Within Euclid part of the *Local Universe Working Group (LU-SWG)*, *Galaxy Evolution/AGN Science Working Group (GAE-SWG)*, the *Strong lensing Science Working Group (SL-SWG)* and *OII-PHZ*.
  - I am leading and co-leading a series of long-term projects (followed in the last  $\sim 10$  years) about the study of
    - \* dark matter fraction in ETGs;
    - \* slope of total mass density; distribution in galaxies;
    - \* Initial Mass Function in ETGs;
    - \* colour and stellar population gradients in galaxies;
    - \* alternative gravity theories using the dynamics of ETGs;
  - Within the VST Kilo-Degree Survey (**KiDS**), I am actively working on different projects related to galaxy evolution analysis:
    - \* census of strong lenses;
    - \* census of ultra-compact massive galaxies (UCMGs) and relics;
    - \* structural parameter determination and evolution;
    - \* stellar mass and stellar population determination, galaxy classification and mass functions;
    - \* photometric redshifts with machine learning;
    - \* dynamical analysis and dark matter evolution with redshift;I am in the core team of KiDS VST-ATLAS Bridging Survey (**KABS**).
  - I am leading the project *Spectroscopic follow-up of ultra-compact massive galaxies*, consisted till now of about 150 hours of observations, which aims at the follow-up of the UCMGs found in KiDS.
  - I am co-leading the project *INSPIRE: INvestigating Stellar Populations and IMF in RElics*, consisting of  $\sim 150$  hours of observations, which aims at determining stellar populations and IMF of UCMGs with XSHOOTER@VLT.
  - I am co-leading the project *Gotta catch'Em All: the spectroscopic follow-up of strong gravitational lenses from Kids and Kabs surveys to spectroscopically follow-up*, aiming at performing the spectroscopic follow-up of gravitational lenses (starting with observations at SALT telescope).
  - I am a member of The Planetary Nebula Spectrograph (PN.S.) survey, aiming at tracing the galaxy kinematics with Planetary nebulae.
  - Previously member of the **ESCAPE HI** project, funded by the PRIN-SKA *Preparing for SKA HI studies of galaxy evolution with multi-wavelength data sets*.
  - I am a member of the Fornax Cluster Deep Survey (FDS), where I am paying particular attention to the analysis of the stellar and structural properties of background galaxies.
  - I am also involved in different projects which will be exploited with instruments/telescopes operative in the next years, as **MAORY+MICADO@E-ELT**, **MAVIS@VLT**, **LSST**.

**Observing proposals accepted  
(from 2014)**

As Principal Investigator (PI) or Principal Contact (PC)

- 2021 - A44TAC\_11 , PI: **C. Tortora** (DOLORES-MOS@TNG – 11.25 hours): *CHARTER PILOT: CHARacterizing The Environment of Relic and ultra-compact massive galaxies*
- 2019 - IT-2019B-011, PI: **C. Tortora** (LUCI-SOUL@LBT – 5 hours): *INVERSO: INVEstigating Relic galaxies with SOUL*
- 2019 - I19an006, PI: **C. Tortora** (IDS@INT – 5 nights): *Spectroscopic follow-up of the brightest ultra-compact massive galaxies selected in the KiDS survey*
- 2018 - 2018-2-SCI-020, PI: **L. Marchetti** (RSS@SALT – 24 hours): *Gotta catch'Em All: the spectroscopic follow-up of strong gravitational lenses from KiDS and KABS surveys*
- 2017 - I17AN005, PI: **C. Tortora** (IDS@INT – 6 nights): *Spectroscopic follow-up of the brightest massive ultra-compact galaxies selected in the KiDS public survey*
- 2016 - 098.B-0563, PI: **C. Tortora** (EFOSC2@NTT – 3 nights): *Spectroscopic follow-up with NTT and VLT of massive ultra-compact galaxies selected in the KiDS public survey*
- 2015 - A32TAC\_45, PI: **C. Tortora** (DOLORES+MOS@TNG – 2 nights): *Spectroscopic follow-up of new massive compact galaxies selected in the KiDS public survey*

As co-Investigator (partial list)

- 2019 - ESO1104.B-0370(A) PI: C. Spinello (XSHOOTER@VLT – 82+72 hours): INSPIRE: INvestigating Stellar Populations and IMF in RElics
- 2018 - ESO0101.A-0410 PI: N.R. Napolitano (OMEGACAM@VST – 102 hours): KABS: KiDS-ATLAS Bridging Survey
- 2017 - A36TAC\_20, PI: N. R. Napolitano (DOLORES@TNG – 36 hours): Spectroscopy of massive ultra-compact galaxies in the KiDS survey: toward completion
- 2017 - HST Cycle 25, ID: 15420, PI: C. Spinello (HST – 2 orbits): The first compact massive lens galaxy in the Kilo Degree Survey
- 2017 - ESO0100.A-0287, PI: N.R. Napolitano (OMEGACAM@VST – 60 hours): KABS: KiDS-ATLAS Bridging Survey
- 2016 - ESO99.A-0691, PI: N.R. Napolitano (OMEGACAM@VST – 83 hours): KABS: KiDS-ATLAS Bridging Survey
- 2016 - ESO098.A-0620, PI: M. Capaccioli (VIMOS@VLT – 20 hours): Spectroscopic follow-up of new strong lens candidates in the KiDS public survey
- 2016 - A34TAC\_22, PI: N. R. Napolitano (DOLORES@TNG – 28 hours): Spectroscopy of massive ultra-compact galaxies in the KiDS survey
- 2016 - GTC41-16B, PI: I. Trujillo (OSIRIS@GTC – 28 hours): Spectroscopic follow-up of massive ultra-compact galaxies selected in the KiDS public survey
- 2015 - ESO096.B-0412, PI: M. Capaccioli (FORS2@VLT – 50 hours): Fornax Cluster VLT Spectroscopic Survey: kinematical and dynamical map with planetary nebulae using counter dispersed imaging (CDI)
- 2015 - ESO295.A-5030, PI: N.R. Napolitano (OMEGACAM@VST – 1.5 hours): Einstein cross around a massive super-compact galaxy in the KiDS survey: a VST follow-up
- 2015 - ESO295.A-5023, PI: N.R. Napolitano (VIMOS@VLT – 5 hours): Einstein cross around a massive super-compact galaxy in the KiDS survey
- 2015 - ESO096.B-0399, PI: N.R. Napolitano (MUSE@VLT – 24 hours): Mapping kinematics and stellar population of dwarf galaxies in the core of the Fornax cluster with MUSE
- 2014 - ESO094.B-0687, PI: M. Capaccioli (VIMOS@VLT – 40.5 hours): Fornax Cluster VLT Spectroscopic Survey: tracing baryonic and dark matter with small stellar systems in the cluster core

**Refereed publications**

74 refereed papers (accepted, one Erratum is not counted and is not included in the list), more than 2000 citations, 24 first-author ( $\sim 32\%$  of the total) and 13 second-author ( $\sim 18\%$  of the total) papers, h-index= 27, g-index= 43, h1-index= 14 (h-index as first author), as of 28/03/2021, using ADS.

I also quantify the citation score of relevant papers, reporting their ranking when compared with the rest of the papers published in the same year (as of 14 Dec 2018, using ADS). 20 papers (8 as first author) are among the Top 20% most cited papers in their year of publication.

Click on the title of the paper to be re-directed to the related page on ADS.

**2021**

- *INSPIRE: INvestigating Stellar Population In RElics. I. Survey presentation and pilot study*, Spinello, C., Tortora, C. et al. 2021, A&A, 646, 28

## 2020

- *Discovery of Two Einstein Crosses from Massive Post-blue Nugget Galaxies at  $z > 1$  in KiDS*, Napolitano, N. R. et al. 2020, ApJ, 904L, 31
- *Central velocity dispersion catalog of LAMOST-DR7 galaxies*, Napolitano, N. R., D’Ago, G., Tortora, C. et al. 2020, MNRAS, 498, 5704
- *AMICO galaxy clusters in KiDS-DR3: galaxy population properties and their redshift dependence*, Radovich, M., Tortora, C. et al. 2020, MNRAS, 498, 4303
- *Scaling relations and baryonic cycling in local star-forming galaxies. II. Gas content and star-formation efficiency*, Hunt, L. K., Tortora, C., Ginolfi, M., Cresci, G. 2020, A&A, 643, 180
- *New High-quality Strong Lens Candidates with Deep Learning in the Kilo-Degree Survey*, Li, R., Napolitano, N. R., Tortora, C. et al. 2020, ApJ, 899, 30
- *The Fornax Deep Survey with VST. IX. Catalog of sources in the FDS area with an example study for globular clusters and background galaxies*, Cantiello, M. et al. 2020, A&A, 639, 136
- *Nature versus nurture: relic nature and environment of the most massive passive galaxies at  $z < 0.5$* , Tortora, C. et al. 2020, A&A, 638L, 11
- *Scaling relations and baryonic cycling in local star-forming galaxies. I. The sample*, Ginolfi, M., Hunt, L. K., Tortora, C. et al. 2020 A&A, 638, 4
- *Euclid: the selection of quiescent and star-forming galaxies using observed colours*, Bisigello, L. et al. 2020, MNRAS, 494, 2337
- *Building the Largest Spectroscopic Sample of Ultracompact Massive Galaxies with the Kilo Degree Survey*, Scognamiglio, D., Tortora, C. et al. 2020, ApJ, 893, 4

## 2019

- *KiDS-SQuaD. II. Machine learning selection of bright extragalactic objects to search for new gravitationally lensed quasars*, Khramtsov, V. et al. 2019, A&A, 632, 56
- *A few StePS forward in unveiling the complexity of galaxy evolution: light-weighted stellar ages of intermediate-redshift galaxies with WEAVE*, Costantin, L. et al. 2019, A&A, 632, 9
- *The dichotomy of dark matter fraction and total mass density slope of galaxies over five dex in mass*, Tortora, C. et al. 2019, MNRAS, 489, 5483
- *Spectroscopic confirmation and modelling of two lensed quadruple quasars in the Dark Energy Survey public footprint*, Spinello, C. et al. 2019, MNRAS, 485, 5086
- *The strong gravitational lens finding challenge*, Metcalf, R. B. et al. 2019, A&A, 625, 119
- *The fourth data release of the Kilo-Degree Survey: ugri imaging and nine-band optical-IR photometry over 1000 square degrees*, Kuijken, K. et al. 2019, A&A, 625, 2
- *LinkS: Discovering galaxy-scale strong lenses in the Kilo-Degree Survey using Convolutional Neural Networks*, Petrucci, C. E., Tortora, C. et al. 2019, MNRAS, 484, 3879
- *Bright lenses are easy to find: spectroscopic confirmation of lensed quasars in the Southern Sky*, Spinello, C. et al. 2019, MNRAS, 483, 3888
- *Testing convolutional neural networks for finding strong gravitational lenses in KiDS*, Petrucci, C. E.; Tortora, C. et al., 2019, MNRAS, 482, 807
- *Statistical analysis of probability density functions for photometric redshifts through the KiDS-ESO-DR3 galaxies*, Amaro, V. et al. 2019, MNRAS, 482, 3116
- *K2-140b and K2-180b - Characterization of a hot Jupiter and a mini-Neptune from the K2 mission*, Korth, J et al. 2019, MNRAS, 482, 1807

## 2018

- *The first sample of spectroscopically confirmed ultra-compact massive galaxies in the Kilo Degree Survey*, Tortora, C. et al. 2018, MNRAS, 481, 4728
- **(Top 20% most cited papers)** *The Fornax Cluster VLT Spectroscopic Survey - I. VIMOS spectroscopy of compact stellar systems in the Fornax core region*, Pota, V.; Napolitano, N. R.; Hilker, M.; Spavone, M.; Schulz, C.; Cantiello, M.; Tortora, C. et al. 2018, MNRAS, 481, 1744
- **(Top 13% most cited papers)** *KiDS-SQuaD: The KiDS Strongly lensed Quasar Detection project*, Spinello, C.; Agnello, A.; Napolitano, N. R.; Sergeyev, A. V.; Getman, F. I.; Tortora, C. et al. 2018, MNRAS, 480, 1163

- *Evolution of galaxy size-stellar mass relation from the Kilo-Degree Survey*, Roy, N.; Napolitano, N. R.; La Barbera, F.; Tortora, C. et al. 2018, MNRAS, 480, 1057
- *The extended Planetary Nebula Spectrograph (ePN.S) early-type galaxy survey: The kinematic diversity of stellar halos and the relation between halo transition scale and stellar mass*, Pulsoni, C. et al. 2018, A&A, 618, 94
- *SEAGLE - I. A pipeline for simulating and modelling strong lenses from cosmological hydrodynamic simulations*, Mukherjee, S.; Koopmans, L. V. E.; Metcalf, R. B.; Tessore, N.; Tortora, C. et al. 2018, MNRAS, 479, 4108
- (Top 16% most cited papers) *The Fornax Cluster VLT Spectroscopic Survey II - Planetary Nebulae kinematics within 200 kpc of the cluster core*, Spinelli, C.; Napolitano, N. R.; Arnaboldi, M.; Tortora, C. et al. 2018, MNRAS, 477, 1880
- (Top 16% most cited papers) *Testing Verlinde's emergent gravity in early-type galaxies*, C. Tortora, L. V. E. Koopmans, N. R. Napolitano, E. A. Valentijn, 2018, MNRAS, 473, 2324
- (Top 16% most cited papers) *The last 6 Gyr of dark matter assembly in massive galaxies from the Kilo Degree Survey*, C. Tortora, N. R. Napolitano, N. Roy, et al. 2018, MNRAS, 473, 969

## 2017

- (Top 3% most cited papers) *Finding strong gravitational lenses in the Kilo Degree Survey with Convolutional Neural Networks*, E. Petrillo, C. Tortora et al., 2017, MNRAS, 472, 1129
- (Top 1% most cited papers) *The third data release of the Kilo-Degree Survey and associated data products*, J. T. A. de Jong et al., 2017, A&A, 604, 134
- *A cooperative approach among methods for photometric redshifts estimation: an application to KiDS data*, S. Cavauti, C. Tortora et al., 2017, MNRAS, 466, 2039
- (Top 3% most cited papers) *The Herschel-ATLAS: a sample of 500  $\mu\text{m}$ -selected lensed galaxies over 600 deg $^2$* , M. Negrello et al. 2017, MNRAS, 465, 3558
- (Top 15% most cited papers) *METAPHOR: a machine-learning-based method for the probability density estimation of photometric redshifts*, S. Cavauti, V. Amaro, M. Brescia, C. Vellucci, C. Tortora, G. Longo, 2017, MNRAS, 465, 1959

## 2016

- *Dark Matter and IMF normalization in Virgo dwarf early-type galaxies*, C. Tortora et al. 2016, MNRAS, 455, 308
- (Top 12% most cited papers) *Towards a census of super-compact massive galaxies in the Kilo Degree Survey*, C. Tortora et al. 2016, MNRAS, 457, 2845
- *Early type galaxies and structural parameters from ESO public survey KiDS*, N. Roy, N. R. Napolitano, F. La Barbera, C. Tortora et al., 2016, ASSP, 42, 135
- *Strong lens search in the ESO public Survey KiDS*, N. R. Napolitano, G. Covone, N. Roy, C. Tortora et al., 2016, ASSP, 42, 135
- *Galaxy evolution within KiDS*, C. Tortora et al., 2016, ASSP, 42, 123
- *Systematic variation of central mass density slope in early-type galaxies*, C. Tortora et al., 2016, ASSP, 42, 215

## 2015

- (Top 1% most cited papers) *The first and second data releases of the Kilo-Degree Survey*, J. T. A. de Jong et al. 2015, A&A, 582, 62
- (Top 17% most cited papers) *Machine Learning based photometric redshifts for the KiDS ESO DR2 galaxies*, S. Cavauti, M. Brescia, C. Tortora et al. 2015, MNRAS, 452, 3100
- *VIMOS mosaic integral-field spectroscopy of the bulge and disk of the early-type galaxy NGC 4697*, C. Spinelli, N. R. Napolitano, L. Coccato, V. Pota, A. J. Romanowsky, C. Tortora, G. Covone, M. Capaccioli 2015, MNRAS, 452, 99

## 2014

- *Evolution of central dark matter of early-type galaxies up to  $z \sim 0.8$* , C. Tortora, N. R. Napolitano, R. P. Saglia, A. J. Romanowsky, G. Covone, M. Capaccioli 2014, MNRAS, 445, 162
- (Top 20% most cited papers) *Systematic variations of central mass density slopes in early-type galaxies*, C. Tortora, F. La Barbera, N. R. Napolitano, A. J. Romanowsky, I. Ferreras, R. R. de Carvalho 2014, MNRAS, 445, 115

– *MOND and IMF variations in early-type galaxies from ATLAS<sup>3D</sup>*, C. Tortora, A. J. Romanowsky, V. F. Cardone, N. R. Napolitano, Ph. Jetzer 2014, MNRAS, 438L, 46

### 2013

- *Colour gradients of high-redshift early-type galaxies from hydrodynamical monolithic models*, C. Tortora, A. Pipino, A. D'Ercole, N.R. Napolitano, F. Matteucci 2013, MNRAS, 435, 786
- (Top 6% most cited papers) *An Inventory of the Stellar Initial Mass Function in Early-type Galaxies*, C. Tortora, A.J. Romanowsky, N.R. Napolitano 2013, ApJ, 765, 8

### 2012

- *SPIDER - VI. The Central Dark Matter Content of Luminous Early-Type Galaxies: Benchmark Correlations with Mass, Structural Parameters and Environment* C. Tortora, F. La Barbera, N.R. Napolitano, R.R. de Carvalho & A.J. Romanowsky 2012, MNRAS, 425, 577
- *Population Gradients in the SDSS Galaxy Catalog. The role of merging* C. Tortora & N.R. Napolitano 2012, MNRAS, 421, 2478
- (Top 18% most cited papers) *Testing Yukawa-like potentials from f(R)-gravity in elliptical galaxies* N.R. Napolitano, S. Capozziello, A.J. Romanowsky, M. Capaccioli & C. Tortora 2012, ApJ, 748, 87

### 2011

- *Stellar mass-to-light ratio gradients in galaxies: correlations with mass*, C. Tortora, N.R. Napolitano, A. J. Romanowsky, Ph. Jetzer, V.F. Cardone, M. Capaccioli 2011, MNRAS, 418, 1557
- *Probing the dark matter issue in f(R)-gravity via gravitational lensing*, M. Lubini, C. Tortora, J. Naf, Ph. Jetzer, S. Capozziello 2011, The European Physical Journal C, 71, 1834
- *Secondary infall model and dark matter scaling relations in intermediate-redshift early-type galaxies*, V. F. Cardone, A. Del Popolo, C. Tortora, N.R. Napolitano 2011, MNRAS, 416, 1822
- *Constraints from the CMB temperature and other common observational data sets on variable dark energy density models*, Ph. Jetzer & C. Tortora, 2011, Phys. Rev. D84, 3517
- *The modified Newtonian dynamics Fundamental Plane*, V.F. Cardone, G. Angus, A. Diaferio, C. Tortora, R. Molinaro 2011, MNRAS, 412, 2617
- *Limits on decaying dark energy density models from the CMB temperature-redshift relation*, Ph. Jetzer, D. Puy, M. Signore, C. Tortora 2011, GReGr, 43, 1083
- *Stellar population gradients from cosmological simulations: dependence on mass and environment in local galaxies*, C. Tortora, A.D. Romeo, N.R. Napolitano, A. Meza, V. Antonuccio-Delogu, J. Sommer-Larsen, M. Capaccioli, 2011, MNRAS, 411, 627

### 2010

- *Dark matter scaling relations in intermediate z haloes*, V.F. Cardone & C. Tortora 2010, MNRAS, 409, 1570
- (Top 8% most cited papers) *Colour and stellar population gradients in galaxies. Correlation with mass*, C. Tortora, N.R. Napolitano, V.F. Cardone, M. Capaccioli, Ph. Jetzer, R. Molinaro 2010, MNRAS, 407, 144
- (Top 19% most cited papers) *Central dark matter trends in early-type galaxies from strong lensing, dynamics and stellar populations*, C. Tortora, N.R. Napolitano, A.J. Romanowsky, Ph. Jetzer 2010, ApJ, 721, L1
- (Top 7% most cited papers) *The central dark matter content of early-type galaxies: scaling relations and connections with star formation histories*, N. R. Napolitano, A.J. Romanowsky, C. Tortora 2010, MNRAS, 405, 2351

### 2009

- *The global mass-to-light ratio of SLACS lenses*, V.F. Cardone, C. Tortora, R. Molinaro & V. Salzano 2009, A&A, 504, 769
- (Top 5% most cited papers) *Central mass-to-light ratios and dark matter fractions in early-type galaxies*, C. Tortora, N.R. Napolitano, A.J. Romanowsky, M. Capaccioli, G. Covone 2009, MNRAS, 396, 1132
- *AGN Jet-induced Feedback in Galaxies. II. Galaxy colours from a multicloud simulation*, C. Tortora, V. Antonuccio-Delogu, S. Kaviraj, J. Silk, A.D. Romeo, & U. Becciani 2009, MNRAS, 396, 61

**2007**

- *Dynamical and gravitational lensing properties of a new phenomenological model of elliptical galaxies*, C. Tortora, V.F. Cardone, E. Piedipalumbo 2007, A&A. 463, 105

**2006**

- *Accelerating universe in scalar tensor models - confrontation of theoretical predictions with observations*, M. Demianski, E. Piedipalumbo, C. Rubano, C. Tortora, 2006, A&A. 454, 55
- (Top 19% most cited papers) *Beyond the perfect fluid hypothesis for dark energy equation of state*, V.F. Cardone, C. Tortora, A. Troisi, S. Capozziello, 2006, Phys.Rev. D73, 04350

**2005**

- *Spherical galaxy models with power law logarithmic slope*, V.F. Cardone, E. Piedipalumbo & C. Tortora, MNRAS, 2005, 358, 1325
- *Two viable quintessence models of the Universe: confrontation of theoretical predictions with observational data*, M. Demianski, E. Piedipalumbo, C.Rubano, C. Tortora 2005, A&A, 431, 27

**2004**

- *Some astrophysical implications of dark matter and gas profiles in a new galaxy cluster model*, V.F. Cardone, E. Piedipalumbo & C. Tortora 2004, A&A, 429, 49
- *Lens modelling and estimate of  $H_0$  in quadruply lensed systems*, C. Tortora, E. Piedipalumbo & V.F. Cardone 2004, MNRAS, 354, 343

**Oral contributions,  
invited seminars and posters****2021**

- *MARE: MAVis for RELics*, Science with MAVIS 2021, 05-08/07/2021

**2020**

- *Relics' Revolution: the journey of massive, compact and old galaxies*, Galaxy Evolution Seminar, Oxford, 03/12/2020
- *VST-SMASH: The VST Survey of Mass Assembly and Structural Hierarchy*, VST beyond 2021 workshop, 11-12/06/2020
- *Compact quiescent galaxies with adaptive optics*, Astrofisica di Frontiera con l'Ottica Adattiva Italiana, Roma, Italy, 19/02/2020

**2019**

- *Relic galaxies: the litmus paper of galaxy evolution*, MAVIS Meeting, Firenze, Italy, 06/11/2019
- *Searching for "gold nuggets" with Euclid*, Euclid Consortium Meeting, Helsinki, Finland, 07/06/2019
- *Better than before: Studying massive elliptical galaxies with the KiDS survey*, Seminario Generale, OAA, Firenze, Italy, 28/02/2019

**2018**

- *Better than before: rare treasures in the KiDS survey*, Astromeeting, OAC, Napoli, Italy, 19/12/2018
- *VAST: very astute sample testing*, ESKAPE-HI project internal meeting, Firenze, 30/11/2018
- *Better than before: rare treasures in the KiDS survey*, VST in the era of the large surveys, Napoli, 06/06/2018
- *Better than before: rare (massive and compact) treasures in the KiDS survey*, Monday Lunch Talk, Kapteyn Institute, Groningen 25/06/2018
- *Better than before: KiDS survey and rare treasures*, Seminar at Università di Napoli, 06/03/2018

**2017**

- *The last 6 Gyr of dark matter assembly in massive galaxies from the Kilo Degree Survey*, Galaxy evolution & environment (GEE-5) meeting, Florence, Italy, 17/11/2017
- *Background science from KiDS to FDS*, Fornax Deep Survey (FDS) meeting, Groningen, The Netherlands, 14/09/2017

- *Dark matter and initial mass function in ETGs*, Aosta lensing meeting, Aosta, Italy, 28/06/2017
- *The Initial Mass Function in ETGs: from Newton to Emergent gravity*, Astromeeting, OAC, Napoli, Italy, 07/03/2017
- *Strong lensing, compact galaxies and galaxy dynamics in KiDS*, KiDS+GAMA+VIKING meeting, Napoli, Italy, 03/02/2017
- *Dark matter and Initial Mass Function in ETGs*, Bright & Dark Universe Workshop, Napoli, Italy, 31/01/2017

#### 2016

- *The census of rare objects in KiDS: perspectives for IMF studies*, The Universal Problem of the Non-Universal IMF, Leiden, The Netherlands, 08/12/2016
- *Dynamical constraints on the IMF*, The Universal Problem of the Non-Universal IMF, Leiden, The Netherlands, 07/12/2016
- *Galaxy evolution in KiDS: perspectives for KABS*, Meeting KABS, Napoli, Italy, 24/11/2016
- *KiDS and rare treasures: hunting compact galaxies and gravitational lenses*, Wednesday Lunch Talk at Kapteyn Institute, Groningen, The Netherlands, 07/09/2016
- 3 Posters: *Strong lens search in the Kilo Degree Survey* (Tortora et al.), *Strong gravitational lenses selection with convolutional neural networks* (Petrillo et al.), *Constraining galaxy evolution scenarios from StrongLens simulations with EAGLE* (Mukherjee et al. ), From theory to applications: celebrating a century of gravitational lensing, Leiden, The Netherlands, 11-15/07/2016
- *Background science: galaxy structure and formation, gravitational lensing and cluster search*, FDS meeting, Napoli, Italy, 07/07/2016
- *Strong lensing in KiDS*, The Beer seminar at the KiDS+GAMA+VIKING meeting, Edinburgh, Scotland, 10/05/2016
- *Surveying the massive and superdense galaxy population with the KiDS survey*, Galaxy Cookies at Kapteyn Institute, Groningen, The Netherlands, 22/03/2016

#### 2015

- *Galaxy evolution within KiDS survey*, Astrolunch, Università Federico II di Napoli, Italy, 25/11/2015
- Poster: *Evolution of central Dark matter of early-type galaxies up to  $z \sim 0.8$* , Evolving Galaxies in Evolving Environments, Bologna, Italy, 15-19/09/2014
- *ViViDAS-VST and VISTA view of DArk matter and Stellar populations in galaxies*, 3<sup>rd</sup> Fellows ANNUAL MEETING AstroFlt, INAF Monte Porzio, Rome, Italy, 25/09/2015
- *Galaxy evolution within KiDS survey*, KIDS Science meeting, Groningen, The Netherlands, 02/07/2015
- *Probing the massive and superdense galaxy population with KiDS*, EWASS15: Deconstructing Massive Galaxy Formation Symposium, Tenerife, 22/06/2015
- *Galaxy evolution within KiDS survey*, Galaxy breakfast seminar, Institute of Cosmology and Gravitation, Portsmouth, UK, 06/05/2015

#### 2014

- *Galaxy evolution within KiDS survey*, The Universe of Digital sky Surveys (UDS), Osservatorio Astronomico di Capodimonte, Napoli, 27/11/2014
- *ViViDAS – VST and VISTA view of DArk matter and Stellar populations in galaxies*, 2<sup>nd</sup> Fellows ANNUAL MEETING AstroFlt, INAF Monte Mario, Rome, Italy, 11/09/2014
- *Galaxy evolution with KiDS (and Viking)*, KIDS Science meeting, Napoli, Italy, 18/03/2014

#### 2013

- *On the universality of the Initial Mass Function*, GEE3 - Galaxy evolution and environment, Padova, Italy, 13/11/2013
- *Is the initial mass function universal?*, EWASS13: special session “A fresh look at the stellar initial mass function”, Turku, Finland, 11/07/2013
- *On the universality of the Initial Mass Function*, “The P.N.S: Future Projects and Ideas”, Lorentz Center, Leiden, The Netherland, 28/2/2013

**2012**

- *Insights on galaxy evolution from the dark matter content of massive early-type galaxies*, Astromeeting, OAC, Napoli, 04/04/2012

**2011**

- *Dichotomy in galactic colour gradients*, “Galaxy Evolution and Environment 2 (GEE2)”, Milano, Italy, 08/11/2011
- Poster: *Dark matter content in the central regions of early-type galaxies*, Fornax, Virgo, Coma et al., Stellar systems in high density environments, Munich, Germany, 27/06-01/07/2011
- *Dark matter and alternative recipes for the missing mass*, III Italian-Pakistani workshop on relativistic astrophysics, Lecce, Italy, 20/06/2011

**2010**

- *Stellar population gradients in galaxies: observations vs simulations*, Astromeeting, OAC, Napoli, 08/11/2010
- *Stellar population gradients in galaxies from cosmological SPH simulations*, Metal enrichment from Hydrodynamical simulation workshop, 17/09/2010, El Escorial, Madrid, Spain
- 2 Posters: *Central dark matter trends in early-type galaxies* and *Colour and stellar population gradients in galaxies*. L’astronomia italiana: prospettive per la prossima decade, 54o Congresso SAIt, OAC, Napoli, 4-7/05/2010

**2009**

- *Mass scales and feedback processes in galaxy evolution*, Seminar on Particle and Astrophysics at ITP Zürich, 16/12/2009
- Poster: *Mass-to-light ratios and dark matter fraction of early-type galaxies*, Galaxies Properties Across Cosmic Ages, Accademia dei Lincei, Roma, Italia, 28-29/04/2009
- *AGN feedback in early-type galaxies: colours from a numerical simulation vs observations*, Journal Club - Seminar at Dipartimento di Scienze Fisiche, Napoli, 10/03/2009

**2008**

- *M/L of early-type galaxy cores: unveiling the alchemy of stellar populations, dark matter and galaxy evolution*, Astromeeting, OAC, Napoli, 19/06/2008

**2006**

- *A phenomenological approach to the problem of dark matter in lens elliptical galaxies*, Scuola Nazionale di Astrofisica (VIII ciclo - III corso), Bertinoro (FC), Italia, 7-12/05/2006
- *Strong lensing (review)*, Io Workshop di Astronomia ed Astrofisica per studenti, Napoli, 19-20/04/2006

**2004**

- *A galaxy model with a variable mass-to-light ratio*, Meeting dell’iniziativa specifica NA12, S. Margherita Ligure (Ge), 27-28/10/2004

**2003**

- *Lens modelling and  $H_0$  estimate in quadruple lensed systems*, Meeting dell’iniziativa specifica NA12, Vietri (SA), 27-28/10/2003
- Poster: *Lens Modelling and  $H_0$  Estimate in Quadruply Lensed Systems*, “Thinking, Observing and Mining the Universe”, Sorrento, Italy, 22-27/09/2003

**Non refereed publications****2020**

- *Rejection criteria based on outliers in the KiDS photometric redshifts and PDF distributions derived by machine learning*, Amaro, V. et al., to appear in the volume “Intelligent Astrophysics” of the series “Emergence, Complexity and Computation”, Book eds. I. Zelinka, D. Baron, M. Brescia, Springer Nature Switzerland, ISSN: 2194-7287

– *Anomaly detection in Astrophysics: a comparison between unsupervised Deep and Machine Learning on KiDS data*, D'Addona, M. et al., to appear in the volume “Intelligent Astrophysics” of the series “Emergence, Complexity and Computation”, Book eds. I. Zelinka, D. Baron, M. Brescia, Springer Nature Switzerland, ISSN: 2194-7287

## 2018

- *KiDS0239-3211: A New Gravitational Quadruple Lens Candidate*, A. Sergeyev et al. 2018, Research Notes of the American Astronomical Society, 2d, 189
- *Rare Treasures in the KiDS Survey*, C. Tortora 2018, VST in the Era of the Large Sky Surveys, Proceedings of the conference held 5-8 June, 2018 in Naples, Italy.
- *Central Velocity Dispersions of the GAMA Spectroscopic Database and Synergies with KiDS*, G. D'Ago et al. 2018, VST in the Era of the Large Sky Surveys, Proceedings of the conference held 5-8 June, 2018 in Naples, Italy.
- *KiDSlens: Gotta Catch'em All*, C. Spinelli et al., 2018, VST in the Era of the Large Sky Surveys, Proceedings of the conference held 5-8 June, 2018 in Naples, Italy.

## 2017

- *MAORY science cases white book*, G. Fiorentino et al. 2017, arXiv:1712.04222, Section 7.1: *Strong lensing with MAORY: Resolving galaxies in the distant Universe*.
- *METAPHOR: Probability density estimation for machine learning based photometric redshifts*, S. Amaro et al., 2017, Astroinformatics, Proceedings of the International Astronomical Union, IAU Symposium, Volume 325, pp. 197-200.
- *Cooperative photometric redshift estimation*, S. Cavaoti et al., 2017, Astroinformatics, Proceedings of the International Astronomical Union, IAU Symposium, Volume 325, pp. 166-172.

## 2016

- *Probability density estimation of photometric redshifts based on machine learning*, S. Cavaoti et al., 2016 IEEE Symposium Series on Computational Intelligence, SSCI 2016.

## 2012

- *Dark matter and alternative recipes for the missing mass*, C. Tortora, Ph. Jetzer & N.R. Napolitano 2012, JPhCS, 354, 2021
- *Limits on decaying dark energy density models from the CMB temperature-redshift relation*, Ph. Jetzer & C. Tortora 2012, JPhCS, 354, 2009
- *Colour and stellar population gradients in galaxies*, C. Tortora, N.R. Napolitano, V.F. Cardone, M. Capaccioli, Ph. Jetzer and R. Molinaro 2012, MSAIS, 19, 298
- *Central dark matter trends in early-type galaxies* C. Tortora, N.R. Napolitano, A.J. Romanowsky, Ph. Jetzer 2012, MSAIS, 19, 302

## 2010

- *Physical models of AGN feedback*, V. Antonuccio-Delogu, J. Silk, C. Tortora, S. Kaviraj, N.R. Napolitano & A.D. Romeo, in “AGN feedback in Galaxy formation”, Published by Cambridge University Press, p.109

## 2007

- *Strong lensing, dark matter and  $H_0$  estimate (review)* C. Tortora 2007, 1<sup>st</sup> Workshop of Astronomy and Astrophysics for Students, 127

## 2004

- *Some astrophysical implication of gas profiles in a new galaxy clusters model* E. Piedipalumbo, V.F. Cardone & C. Tortora 2004, Baryons in Dark Matter Halos, 11
- *Discussion on Potentials and Tracking Behavior* C. Rubano, M. Capone, C. Tortora 2004. PHI IN THE SKY: The Quest for Cosmological Scalar Fields. AIP Conference Proceedings, 736, 159
- *Lens Modelling and  $H_0$  Estimate in Quadruply Lensed Systems* C. Tortora, E. Piedipalumbo, V.F. Cardone 2004, Proceedings of the International Conference "THINKING, OBSERVING AND MINING THE UNIVERSE". Edited by Gennaro Miele & Giuseppe Longo. Published by World Scientific Publishing

