

CURRICULUM VITAE

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Pierluigi Monaco

Physics Department, Astronomy Section, University of Trieste
via Tiepolo 11, 34143 Trieste (Italy)
Tel.: +39 040 3199 131
Fax: +39 040 309418
Email: pierluigi.monaco@inaf.it
Web page: <http://adlibitum.oats.inaf.it/monaco/>

Personal Data

Birthplace and date: Palermo (Italy), May 22nd, 1969.
Nationality: Italian.
Civil status: married, two daughters.

Story

- October 2016: associate professor at the University of Trieste
- October 2014: visiting scientist (one month) at the Institute of Astronomy, Cambridge (UK).
- 2014: qualified for the role of Associate Professor.
- 2008/2009: sabbatical year at the Astronomical Observatory of Trieste to start a project of hydrodynamical simulations of galaxies.
- July 2008: visiting scientist (one month) at the Centre de Physique Teorique, Marseille (France).
- June 2005: visiting scientist (one month) at the Institute of Computational Cosmology, Durham (UK).
- April-May 2002: visiting scientist (one month) at the European Southern Observatory, Garching (Germany).
- January-April 1999: four-month visit at the Institute of Astronomy, Cambridge (UK).
- December 1998: *ricercatore universitario* at the University of Trieste.
- July 1997: two-year Marie Curie Research Training Grant at the Institute of Astronomy, Cambridge (UK).
- July 1997: PhD in astronomy, supervisor: Prof. F. Mardirossian.
- May 1994: 1-year civil service at Trieste.
- January 1993: PhD course in Physics at the University of Trieste.
- July 1992: bachelor in Physics at the University of Trieste with a votation of 110/110 cum laude, supervisor: Prof. G. Giuricin.

Publications and bibliometry (from NASA Abstract Data Service, 24 January 2017)

- Author of 122 articles in peer-reviewed journals, of which 28 as first author.
- Author of 179 papers, of which 48 as first author.
- 6903 citations, 1068 citations of first-authored papers.
- Hirsch's h-index: 44.
- Citations normalized to the number of authors: 1304.
- M-index (h divided by the number of years of activity): 1.4.

Visits, seminars, conferences

- Visits and seminars on invitation in Cambridge, Durham, Edinburgh, Cardiff, Oxford, Portsmouth, London (UK), Garching, Heidelberg, Frankfurt (Germany), Toronto, Waterloo (Canada), Marseille (France), Pune (India), Trieste, Padova, Bologna, Torino, Firenze, Roma, Milano, Palermo.
- Participation to more than 100 national and international conferences, most of which with an oral communication.
- Participation to many conferences and workshops on invitation.
- Invited reviewer in several international conferences and schools.
- May 2010: member of the LOC of the third workshop of the Italian Astrobiology Society, "When Darwin meet Copernicus", in Duino.
- September 2012: member of the SOC of the Active Galactic Nuclei 10 conference, in Rome.
- September 2014: chair of the SOC of the Active Galactic Nuclei 11 conference, in Trieste.
- July 2015: member of the SOC of the workshop "Cosmological simulations: from galaxies to large scales" at the Sexten Center for Astrophysics (Sexten, Italy).
- 2022: SOC of the XV School of Cosmology in Cargese.

Fields of interest

- Non-linear evolution of cosmological perturbations, in standard and modified gravity.
- Control of systematics in galaxy clustering measurements.
- N-body cosmological simulations, standard and with approximate methods.
- Hydrodynamical N-body simulations for the formation of galaxies.
- Galaxy formation with analytic and semi-analytic methods.
- Active Galactic Nuclei.

Main scientific activities in this period.

- Preparation of the Euclid mission: construction of the covariance matrix of clustering measurements with large sets of mock galaxy catalogs produced with approximate methods (PINOCCHIO); study of the impact of systematics on the measurement of galaxy clustering and on cosmological parameter estimation.
- Cosmological simulations: development of PINOCCHIO approximate method, extensions to modified gravity theories.

Main numerical codes produced in my carrier

- Public code, distributed under a GNU/GPL license, for the fast production of catalogs of dark matter halos: PINpointing Orbit Crossing Collapsed Hierarchy Objects (PINOCCHIO). Present in the Astrophysics Source Code Library.
- Semi-analytic model for the formation of galaxies in a cosmological context: Model for the Raise of GALaxies aNd Active nuclei (MORGANA).
- Sub-resolution model of the InterStellar Medium for star formation and stellar feedback: MUlti-Phase Particle Integrator (MUPPI), developed within the N-body+SPH code GADGET.

Participation to collaborations:

Euclid

- Co-lead of Observational Systematics Work Package in Galaxy Clustering Science Working Group.
- Co-lead of Observational Systematics pre-launch Key Project, containing 11 planned papers.
- Leader of the Processing Functions for the computation of covariance of galaxy clustering, within Operational Unit - Level 3 Products.
- Co-leader of the WP on simulations for galaxy clustering within the Cosmological Simulation Working Group.

Italian Center for SuperComputing (ICSC)

- Spoke 3 (Astrophysics and Cosmos Observations), lead of WP2 "Design of innovative Algorithms, Methodologies, Codes toward Exascale and beyond"

Associations

- Istituto Nazionale di Astrofisica (INAF).
- Istituto Nazionale di Fisica Nucleare (INFN).
- Institute for the Fundamental Physics of the Universe (IFPU).
- International Astronomy Union (IAU).

Activity of research evaluation

- Referee for the journals Monthly Notices of the Royal Astronomical Society, The Astrophysical Journal, Astronomy & Astrophysics and others.
- Evaluator of grant proposals for the Georgian, Austrian, Israel national science funds.
- Participant to the Albo dei Revisori of Italian MIUR, evaluator of FIRB, SIR and Rita Levi Montalcini projects.

Teaching (for the University of Trieste, unless otherwise noted)

- 2000-2001: course on Stellar Physics, for the fourth year of the *laurea quadriennale* in Physics.
- 2000-2002: tutoring for Physics course for geology.
- 2001-2015: course on Introduction to Astrophysics, third year of *laurea triennale*, with the exception of the sabbatical year 2008/2009. Course notes are publicly available (<http://adlibitum.oats.inaf.it/monaco/Homepage/Dispense/index.html>).
- 2012/2013: course on Cosmology II, second year of the *laurea magistrale* in Physics.
- 2015-2017: course on Theoretical Astrophysics, first year of the *laurea magistrale* in Physics.
- 2016-2023: course on Cosmology I, first year of the *laurea magistrale* in Physics.
- 2016/2017: contract professor at the Ljubljana University, Extragalactic astrophysics.
- 2006-2023: course on The Formation of Galaxies for the PhD program in Physics.
- 2000-2002: course on di Non-linear Evolution of Perturbations for the PhD program in astronomy at SISSA (Trieste).
- 2017-2023: course on Fisica Generale 2 for bachelor degree in electronic engineering.
- Supervisor or co-supervisor of many theses of laurea quadriennale, laurea magistrale/specialistica, PhD in physics (eight at the University of Trieste, one at SISSA).
- Some of my students that have taken successful careers in astrophysics: Christian Marinoni (co-supervisor of laurea thesis), Giuliano Taffoni (PhD supervisor), Fabio Fontanot (laurea and PhD supervisor), Alex Saro (laurea triennale supervisor), Gabriele Cescutti (laurea specialistica supervisor), Gisella De Rosa (laurea triennale and specialistica supervisor). The PhD thesis of Fabio Fontanot has been awarded a Tacchini prize.
- Member of PhD commission for final exams in Trieste, Padova, Durham (UK), Barcellona.
- Reviewer of PhD theses for Roma2, Bologna and Pune (India) universities.

Computational time grants

- Participant to several computational time grants at CINECA, ISCRA, PRACE.
- PI of CASPUR, ISCRA-B and PRACE Preparatory Access successful grants, for millions of granted cpu-hours.