MATTEO VIEL

Date of birth: September 5, 1975 **Place of birth:** Udine (Italy)
Nationality: Italian

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Curriculum vitae

- **7/1999**: **Degree in Physics**, Università di Padova (Italy), Thesis: "A merger tree for the formation of cosmic structures" Thesis supervisors: Prof. Sabino Matarrese, Prof. Giuseppe Tormen (grade: full mark 110/110 cum laude)
- **9/1999 - 3/2000**: Pre-doctoral Fellowship from Università di Padova for a period of six months at Max-Planck-Institut for Astrophysics (Garching, Germany)
- **11/1999 - 11/2002**: PhD position at the Physics Department of Università di Padova (Italy)
- **02/2001 - 04/2001**: Visiting period at Max-Planck-Institut fü r Astrophysik (Garching, Germany)
- **04/2001 - 10/2001**: EARA-Marie Curie Fellowship at Max-Planck-Institut fü r Astrophysik (Garching, Germany)
- **02/2002 - 07/2002**: EARA-Marie Curie Fellowship at Institute of Astronomy (Cambridge, UK)
- **11/2002 - 10/2003**: **Research Associate** - Institute of Astronomy (Cambridge, UK)
- **02/2003**: **PhD in Physics**, Università di Padova (Italy), Thesis "Numerical Models of the Intergalactic Medium" - Thesis supervisor: Prof. Sabino Matarrese

- **10/2003 - 10/2006**: **Research Associate** - PPARC (Particle Physics Astronomy Research Council) fellowship, Institute of Astronomy (Cambridge, UK)

- **11/2004 - 12/2004**: Visiting period at KAVLI institute (Santa Barbara) for the program Galaxies-Intergalactic Medium interaction

- **10/2004 - 10/2006**: Research Fellow Clare Hall College (Cambridge, UK)

- **01/2006 - 11/2016**: **Researcher staff position at Trieste Observatory** (INAF-OATS)

- **10/2006 - present**: Affiliated to **INFN** (Italian National Institute of Nuclear Physics)

- **01/2011 - present**: Scientific local coordinator of INFN CSN4 Specific Initiative PD51-INDARK: Fisica Astro-Particellare: Inflazione, materia oscura e struttura su grande scala dell 'Universo

- **07/2009**: visiting scientist at the IoA, Cambridge (UK)

- **12/2010 - 12/2016**: **Winner of the European Research Council - Starting (Consolidator) Grant (ERC-StG) cosmoIGM - The Intergalactic Medium as a Cosmological Tool**

- **08/2010 - 11/2016**: Member of Collegio Docenti and Affiliated Staff of the Astroparticle Group at SISSA

- **2011-2014**: elected as a member of INAF Comitato di Macroarea-1: Galassie e Cosmologia

- **10/2012 - 10/2014**: elected as a member of the Time Allocation Committee (TAC) for the Italian telescopes TNG/LBT/REM

- **07/2017**: Abilitazione prima fascia **02/C1** – Astronomia, Astrofisica, Fisica della Terra e dei Pianeti

- **12/2016 - 10/2021**: **Associate Professor** in the Astroparticle Physics Group at SISSA University

- **12/2016 - present**: Affiliated to INAF with research assignment to administrate funds

- **03/2018**: Abilitazione prima fascia **02/A2** – Fisica Teorica delle Interazioni Fondamentali

- **05/2018 - present**: **Coordinator** of Astroparticle Research Group and Astroparticle Phd Curriculum at SISSA

- **11/2021 - present**: **Full Professor** in the Astroparticle Physics Group at SISSA University

Research Interests

My research focusses on the use of the **large scale structure as a cosmological probe**. In particular, I have investigated the so-called mildly non-linear scales, especially in the **high redshift universe**, as probed by different observables. These scales allow to constrain the cosmological model and put constraints of fundamental properties such as **neutrino masses** and the **coldness of cold dark matter**. I have also made a comprehensive analysis of baryons from high to low redshift addressing the **galaxy-intergalactic medium interplay**. Here below I summarize in more details my main research interests.

- **The Intergalactic Medium/IGM** - Investigation of the Lyman$-\alpha$ forest, which is the main manifestation of the intergalactic medium, as a cosmological tool to probe the: 1) growth of cosmic structure; 2) fundamental physics; 3) the galaxy-IGM interplay. Constraints on the thermal history and metal enrichment of the Intergalactic Medium. Thermal, dynamical and chemical properties of the IGM. Reionization of the universe and evolution and nature of the Ionizing Background. Impact of galactic winds on the IGM. Low redshift IGM. Reionization. Impact of galactic winds and black hole feedback on galaxy evolution and on the IGM. Metal enrichment mechanisms in the high redshift universe. Absorption lines properties using high (UVES), medium (X-Shooter) and low (BOSS) resolution spectrographs. 21 cm intensity mapping as a cosmological observable in the post-reionization era.

- **Fundamental physics** - Nature of dark matter and its impact on the large, medium and small scale structure of the Universe. Constraints on the coldness of cold dark matter and warm dark matter models. Full characterization of cosmological massive neutrinos in the linear and non-linear regime. Constraints on sterile neutrino particles using the Lyman-α forest. Measuring the cosmic expansion using the Lyman-α forest with the ESO-ELT (Extremely Large Telescope). Constraints on inflationary models and primordial non gaussianity using the IGM.

- **Cosmological parameters** - Recovery of cosmological parameters and properties of the dark matter density field in standard and non-standard cosmological models. Quantitative measurements of dark energy, warm dark matter, neutrinos properties. Early dark energy models. Cross-correlation of large scale structure data (SDSS galaxies and quasars, Fermi sources and diffuse signal, NVSS, 2MASS, etc.) and cosmic microwave background (Planck, WMAP) data. Multi dimensional likelihood estimation of cosmological parameters using Monte Carlo Markov Chains. Cosmic degeneracies (e.g. neutrinos and modified gravity). Tensions in the standard cosmological model.

- **Structure formation using High Performance Computing Facilties** - Hydrodynamic and N-body codes. Evolution of cosmic structures in the high redshift universe. Density profiles of dark matter halos. Comparison of SPH and Eulerian codes for the physics of the IGM and the large scale structure. Use of international parallel super computer (COSMOS, HPCS in Cambridge (UK) and CINECA (Italy) in particular) to simulate the Universe at different scales. Coupled and early dark energy, modified gravity models and the impact on the Medium Scale Structure and IGM. Neutrino and warm dark matter simulations.

Teaching

- Supervisor, Part III Physics Gravitational Astrophysics and Cosmology - a course held by Professors Lasenby, Fabian, Rees and Hobson (Physics Department - University of Cambridge) (years 2003-04)
- Supervisor, Part III Maths Physical Cosmology - a course held by Prof. Pettini and Dr. Weller (DAMTP - University of Cambridge) (years 2005-06)
- Lectures at Beijing Normal University (China) on the Physics of the Intergalactic Medium , 10 hrs course (October 2006)
- Lecturer at Università La Sapienza, Cosmology course for PhD students Intergalactic Medium Cosmology , 2007, 12 hrs course
- Lecturer at SISSA (Trieste) Structure formation for PhD students, during years 2009, 2010, 2011 - 12 hrs course
- 2011: 20hrs lecturing at Università degli Studi di Trieste for the Cosmology course of Prof. Borgani
- 2011: 6hrs lecturing at Università degli Studi di Bologna for the PhD curriculum in Astronomy
- 2011: Lecturer at the PhD school on neutrinos organized by INFN in Padova
- 2012: 20hrs lecturing at University of Trieste (Cosmology course)
- **2012 - now**: Structure Formation course: 24hrs lectures at SISSA for APC/APP Curricula
- **2015 - now**: Foundation of Physical Cosmology course: 16hrs lectures at SISSA for APP Curriculum
- 2017: Joint cosmology course between Trento and SISSA Universities "Cosmology from large to small scales" - 12 hrs

Administrative Duties

- Coordinator PhD Curriculum Astroparticle Physics since May 2018
- Commissione SISSA interventi assistenziali since Feb 2018
- Membro di due commissioni per RTD-A presso UniPD e UniMI, una commissione per la conferma di un RTD-B presso UniTS, una commissione PO.

Conferences/Workshops/Schools Organized

- July 2004, Cambridge(UK) Institute of Astronomy, workshop Cosmology with Lyman-α
- NOVICOSMO 2008, Trieste October 2008, International conference: The impact of Simulations in Cosmology and Galaxy Formation
- ICTP (Trieste, Italy) Cosmology school 2010:
  http://cdsagenda5.ictp.trieste.it/full_display.php?ida=a07163
- COSMOCOMP meeting in Trieste - LOC member
  http://adlibitum.oats.inaf.it/meetings/COSMOCOMPTS/
- ICTP (Trieste, Italy) Cosmology school 2014:
  http://cdsagenda5.ictp.it/full_display.php?email=0&ida=a13212
- ICTP (Trieste, Italy) Conference on Cosmology from baryons at high redshift
  http://cdsagenda5.ictp.it/full_display.php?email=0&ida=a13215
- Sexten Center for Astrophysics - July 2015 "Galaxy Clustering within Euclid OULE3"
  http://www.sexten-cfa.eu/en/conferences/2015/details/57-galaxy-clustering-within-euclid-oule3.html
- Sexten Center for Astrophysics - February 2016 "Astrophysics of Dark Matter"
  http://www.sexten-cfa.eu/en/conferences/2016/details/67-astrophysics-of-dark-matter.html
- "F. Lucchin" Cosmology School for Italian PhD Students - May 2016 - Naples Astronomical Observatory http://eventi.na.astro.it/en/scuola-lucchin/
- Sexten Center for Astrophysics - July 2017 "Getting ready for science. Euclid Galaxy Clustering under Science Performance Review"
  http://www.sexten-cfa.eu/en/conferences/2017/details/81-getting-ready-for-science-euclid-galaxy-clustering-under-science-performance-review.html
- Organizer of the ASTRO-TS meeting at SISSA (Trieste) - 25-26/09/2017
- member of the international advisor committee of the UCLA DM 2018 conference
- SOC member of the conference "From Dark Energy to Bright Synergies" (sexten, July 2018)

- SOC member of the workshop “General Relativity Effects in the Large Scale Structure” (Sexten, July 2018)

- Scientific organizer of the Euclid theory Group Annual meeting - 8-10 June 2020 - zoom online event (110 participants)

Outreach

- Physorg: http://www.physorg.com/news76328087.html
- ESI-TOPICS: Emerging Research Fronts Comments http://www.esi-topics.com/erf/2006/october06-MatteoViel.html
- FEST (Festival Editoria Scientifica Triestina) 2007 Trieste - Talk
- SPACE ART at immaginario scientifico Trieste - October 2008
- Telecom ItaliaX10: http://italiax10.telecomitalia.com/news/intervista-a-matteo-viel/
- Intervista a Radio 24: http://www.radio24.ilsole24ore.com/programma/altra-europa/2013-09-28/partecipazione-democratica-europa-101933.php?idpuntata=gSLA5RO9V&date=2013-09-28
- On average 5/6 public talks per year

Main Collaborations

- **Since 2014 - Euclid Deputy Lead** of theory Working Group, member Simulation Working Group; **Since 2014 - Manager** of the OU-LE3 Organisational Units-Level 3 of Validation for Galaxy Clustering.
- Member of the **SKA Cosmology Group** (since June 2014)
- Computational projects on european parallel supercomputers: COSMOS, HPCS-Darwin (Cambridge, UK); CINECA (Italy); Marenostrum (Barcelona, Spain). PRACE.
- Cambridge - UK (Institute of Astronomy); Garching - Germany (MPA, ESO), CERN (Switzerland), Padua University (Italy)
- X-Shooter instrument (medium resolution spectrograph) and WEAVE spectrograph.
- member of the **BOSS/SDSS-III** collaboration (April 2011 - June 2014).
- member of the light core team of Planck for a project to compute cross-correlation between CMB maps and the large-scale structure (since June 2011) ISW effect and constraints on non-gaussianities by using cross-correlation of LSS tracers and evolution of the Dark Energy and modified gravity.

- 2008-2013 ESPRESSO and high res. spectrograph instruments: high resolution spectrographs on the E-ELT (ESO - Extremely Large Telescope)
- since 2015: International Astronomical Union (IAU) Member of Division J Galaxies and Cosmology and Member of Inter-Division B-H-J Commission Intergalactic Medium

Bibliometry

287 total publications, 216 refereed
23300 citations
2900 citations for papers as a first author
h-index = 69
first author h-index = 22
i-10 index = 201; i-100 index = 49
(Nov 2021: from NASA/ADS and INSPIRE/HEP)

Google scholar metric: h-index = 78, Citations = 30600, i10-index = 208 (Nov. 2021)
Google scholar metric (since 2016): h-index = 64, Citations = 20600, i10-index = 181 (Mar. 2021)

Scopus h-index: 61
total documents: 230, total cites: 18600 (Scopus - Mar. 2021)

Nov. 2020:
h-index (2010, 2020): 51 (from Supporto CRUI)
h-index (2005, 2020): 56 (from Supporto CRUI)
Citations (2010, 2020): 14480 (from Supporto CRUI)
Citations (2005, 2020): 17470 (from Supporto CRUI)

Other Activities

Referee for Astronomy and Astrophysics, MNRAS, MNRAS Letters, Physical Review D, JCAP, Astrophysical Journal, Physical Review Letters. Referee for the NWO: Netherlands Organisation for Scientific Research. Swiss NSF and Israeli National Agencies for Research. Referee for ANVUR.
Referee for ERC (Starting, Consolidator and Advanced Grants Funding Schemes).
Referee for ISCRA and PRACE.
GEV FIS/02 member for ANVUR VQR 2015-19.

Member of PhD evaluation committee: J. Brandbyge (Aarhus Univ.); M. Savalainen (Helsinki Univ.); C. Schultz (Aarhus Univ.); A. Arino (Barcelona Univ.), B. Audren (Lausanne Univ.),

F. Villaescusa-Navarro (Valencia Univ.), J. Schewtschenko (Durham Univ.), A. Pezzotta (Milano Univ.), L. Keating (Cambridge Univ.), S. Bosak (Durham Univ.), Matteo Zennaro (Milano Univ.), Simone Peirone (Leiden Univ.), Simone Ammazzalorso (Torino Univ.), Marco Bonici (Genova Univ.), Rafael Yunis ("La Sapienza" Univ., Roma), David Valcin (Univ. Barcelona, Spain).

Students and Postdocs

- University Master Degree Students: Matteo Costanzi (2011, Università di Trieste, co-superv. with Prof. Borgani); Alex Zucca (2014, Università di Trieste, co-supervision with Dr. Ansoldi e Silvestri); Simone Peirone (2016, Università di Trieste, co-supervision with Dr. Ansoldi and Prof. Borgani); Maria Berti (2019, Università di Trieste, co-supervision with Dr. Ansoldi and Dr. F. Lepori); Matteo Esposito (2021, Universià di Trieste, co-supervision with Prof. Borgani).

- PhD-Students supervised: 1) Edoardo Tescari (April 2007 - April 2010 - now postdoc in Swinburne Univ.) "Chemical and Physical Properties of the Intergalactic Medium "; 2) Chiara Mongardi (Dec 2013 - Dec 2016) "The galaxy/IGM interplay", co-supervision with Dr. D'Odorico; 3) Elena Massara (SISSA/ICTP, Oct 2012 - Oct 2016 - now postdoc at Waterloo Univ.) "Neutrinos and voids in modern cosmology" , co-supervision with Prof. Sheth; 4) Antonella Garzilli (SISSA, Oct 2008 - Oct 2012, now postdoc in Leiden) "A measurement of the thermal history of the intergalactic medium, and constraints on primordial black holes in the Galaxy", co-supervision with Dr. S. Leach; 5) Matteo Costanzi (UniTS, 2011-2014, postdoc at LMU) "Neutrino constraints from Clusters of Galaxies and other probes", co-supervision with Prof. Borgani; 6) Isabella Carucci (SISSA, Oct 2013 - Oct 2017 - now postdoc at CEA Saclay) "Cosmic neutral hydrogen as tracer of the large scale structure of the Universe", co-supervision with Prof. Lapi); 7) Andrej Obuljen (SISSA, 2014-18 - now postdoc at Waterloo Univ.) "Large-Scale Structure with 21cm Intensity Mapping"; 8) Francesca Lepori (SISSA, 2014-2018 - now postdoc at Geneve Univ.) "Relativistic Cosmology from the Linear to the Non-Linear Regime"; 9) Riccardo Murgia (SISSA, 2015-2019 - now postdoc in Montpellier University) "Constraining Dark Matter properties with the Inter-Galactic Medium and other probes"; 10) Gabriele Parimbelli (SISSA, 2016-2020, - now postdoc at INAF) "The impact of cosmological neutrinos on large-scale structure observables"; 11) Dimitar Ivanov (SISSA, 2016-2020 2020 - co-supervision with Prof. Liberati) "Testing deviations from LCDM model with electromagnetic and gravitational waves"; 12) Tommaso Ronconi (SISSA, 2016-2020 - co-supervision with Prof. Lapi, now postdoc at SISSA) "From Cosmic Voids to Collapsed Structures: HPC Methods for Astrophysics and Cosmology" ; 13) Hasti Khoraminezhad (SISSA "New avenues for investigating the Large-Scale Structure of our Universe" co-supervision with Prof. Baccigalupi, now postdoc at Missouri Univ.); 14) Giulio Scelfo (SISSA, to finish in Oct 2022 - co-supervision with Prof. Lapi); 15) Maria Berti (SISSA, to finish in Oct 2023); 16) Valentina Danieli (SISSA, to finish in Oct 2024).

  Postdocs directly funded from PI grant money: Dr. Paramita Barai (cosmoIGM postdoc 2011-2014); Dr. Francisco Villaescusa-Navarro (cosmoIGM postdoc 2012-2016); Dr. Tae-Sun Kim (cosmoIGM postdoc 2013-2016); Dr. Enea Di Dio (cosmoIGM postdoc 2014-2017) - INFN grant; Dr. Paul Sutter (INFN/INDARK in Trieste - postdoc 2014-2016); Dr. Marta

Spinelli (INAF - postdoc 2018-2021); Dr. Gabriele Parimbelli (INAF - ASI-INAF funding - postdoc 2020-2022).

Grants and funding

- **Member** of research unit of PRIN-MIUR 2007 "The cosmic cycle of baryons " P.I. Prof. S. Borgani (140 kE total grant)
- PRIN-INAF 2009 "Towards an italian network of computational cosmology " 110 kE (4 research units, role **national P.I.** of the research project)
- ASI/AAE Grant 2006-2009 (Theory: High Energy Astrophysics) 60 kE for 3 yrs (role: **P.I. of the local research unit** at INAF-OATS (national P.I. Prof. Moscardini)
- **Member** of research unit of ITN (European Network) Computational Cosmology - COSMO-COMP: P.I. Prof. Baugh (Durham), local coordinator Prof. Borgani (Università di Trieste) - Trieste node 540 kE + 90 kE (da progetto LACEGAL) for students and researchers
- **Winner of ERC-StG (European Research Council - Starting Grants) with the 6yrs project "cosmoIGM: the intergalactic medium as a cosmological tool " (role: P.I.; amount: 891,500 Euros to cover the joining of the Sloan Digital Sky Survey-III/BOSS survey for the acoustic baryonic oscillations + 4 postdoctoral fellows + 50% of my salary)** ERC old group web-page: http://www.sissa.it/∼viel/cosmoIGM/
- PRIN INAF 2011 "A complete view of the first years of galaxy formation" (National P.I. A. Fontana), **local P.I. of research unit** 10 kE.
- PRIN MIUR 2012 "Evoluzione dei barioni cosmici: effetti astrofisici e crescita delle strutture cosmiche" (national P.I. Prof. Borgani) - 270 kE total, **member of research unit**
- **Scientific local coordinator** of research specific initiative **INFN-PD51 INDARK** (funding about 10kE/yr + one 40kE two-year postdoctoral fellowship in 2014)
- **PRIN INAF - SKA** project FORECast (national P.I. Dr. I. Prandoni) member of local research unit with 2 yrs postdoc funding (total 70 kE) for the project "mocking SKA" (jointly with Dr. De Lucia).
- Fondi **FFABR** 3kE.

Funds directly administrated: 891.5 kE (ERC-StG)+ 60 kE (ASI/AAE) + 110 kE (PRIN-INAF) + 10 kE (PRIN INAF) + 60 kE (INFN) + 70 kE (PRIN INAF SKA) = 1.2 ME

Seminars

- 03/2001: Institute Seminar at MPA
- 03/2001: Cosmology Seminar at MPA
- 11/2001: Institute Seminar at Dipartimento di Astronomia di Padova (Italy)
- 11/2001: Cosmology Seminar at Osservatorio Astrofisico di Arcetri (Florence, Italy)
- 11/2001: Institute Seminar at Osservatorio Astronomico di Trieste (Italy)
- 11/2002: Institute Seminar at Institute of Astronomy Cambridge (UK)
- 09/2003: Institute Seminar at Osservatorio Astronomico di Trieste (Trieste, Italy)
- 10/2003: Institute Seminar at SISSA (Trieste, Italy)
- 10/2003: Institute Seminar at Dipartimento di Astronomia di Bologna (Bologna, Italy)
- 10/2003: Institute Seminar at Osservatorio Astronomico di Padova (Bologna, Italy)
- 03/2004: Institute Seminar at Department of Astronomy, University of Sussex (Brighton, UK)
- 11/2004: Cosmology Seminar at Department of Astronomy, University of Oxford (Oxford, UK)
- 11/2004: Lyman-α forest seminar, University of Berkeley (US)
- 12/2004: Astrophysics Colloquium, Fermilab (US)
- 12/2004: Seminar at the Astronomy Department, Princeton (US)
- 07/2005: Institute Seminar at Institute of Astronomy Cambridge (UK)
- 02/2006: Institute Seminar at Durham (UK)
- 10/2006: Institute Seminar at Trieste Observatory (Italy)
- 10/2006: Institute Seminar at High Energy Physics Institute of Beijing (China)
- 11/2006: Institute Seminar at Scuola Normale Superiore di Pisa (Italy)
- 03/2007: Institute Seminar at ICTP (Institute Cosmology and Theoretical Physics (Trieste, Italy)
- 05/2007: Seminar at IASF/BO. Institute for astrophysics (Bologna, Italy)
- 05/2008: Institute Seminar in Marseille (France)
- 07/2009: Seminar at osservatorio Astronomico di Palermo (Italy)

- 12/2010: Joint Astronomical Colloquium Heidelberg (Germany)
- 10/2011: Institute seminar at INAF/BRERA (Milan, Italy)
- 10/2012: Seminar at Lubjana University (Slovenia)
- 09/2013: Institute seminar at Barcelona University (Spain)
- 04/2014: Institute seminar at Royal Observatory of Edinburgh
- 11/2014: Institute seminar Università di Torino/Dipartimento di Fisica
- 01/2015: Invisibles webinar
- 05/2016: Gentner colloquium at MPIK (Heidelberg, Germany)
- 09/2016: Institute seminar at Helsinki University (Finland)
- 11/2016: Institute seminar at Aachen University (Germany)
- 04/2017: Invited seminar at LAM Marseille (France)
- 11/2017: Elusives webinar
- 04/2018: Invited Colloquium at ETH Zurich (Switzerland)
- 05/2018: Invited seminar at Montpellier LUPM (France)
- 11/2018: Invited talk at CERN Theory Division (Switzerland)
- 03/2019: Bologna joint astrophysical colloquium (Bologna, Italy)
- 05/2019: Invited seminar at GSSI (L'Aquila, Italy)
- 06/2019: Invited seminar at TUM (Munich, Germany)
- 11/2019: Colloquium at OKC Stockholm (Sweden)
- 02/2020: CCA Simons foundation center for computational astrophysics (New York, US). Colloquium.
- 05/2020: Invited colloquium speaker at Geneve University (Switzerland) - postponed
- 06/2020: Colloquium. Aachen University (Germany) - postponed
- 06/2020: Institute Seminar at Naples Observatory (zoom)
- 11/2020: Institute Seminar at ICG Portsmouth (UK)
- 11/2020: Institute Seminar at Indian Institute of Technology Indore (India)
- 06/2021: Institute Seminar at Physics Department of Sharif University (Iran)

- 07/2021: Institute seminar at Fermilab - CPC series (USA)
- 11/2021: DAMTP Seminar - University of Cambridge (UK)
- 11/2021: Invited seminar ECU (EPFL, Cern, Geneva Univ.) Series at Geneva University (Switzerland).

Conferences

- 9/2000: Joint 2000 annual meeting: European TMR network "The Formation and Evolution of galaxies and European RTN network The Physics of the Intergalactic Medium ", Durham (UK) - Oral presentation
- 9/2000: National School of Cosmology and Astrophysics, Asiago (Italy) - Oral presentation
- 04/2001: RTN workshop Computational Investigations of the Intergalactic Medium , Garching (Germany) - Oral presentation
- 06/2001: IAP colloquium: Gaseous Matter in Galaxies and in the Intergalactic Space ¢, Paris (France) - Poster presentation
- 06/2001: RTN workshop The First Stars and the Reionization of the Universe , Florence (Italy) - Talk
- 08/2001: Lighthouses of the Universe , Garching (Germany)
- 10/2001: National School of Astrophysics, Trieste (Italy) - Oral presentation
- 10/2001: RTN network The Physics of the Intergalactic Medium , Eibsee (Germany) - Oral presentation
- 02/2002: Lyman-α emission at high redshift , Institute of Astronomy, Cambridge (UK)
- 06/2002: Elba (Italy) 2002 conference. Early cosmic structures and the end of the dark ages - Oral presentation
- 07/2002: Cambridge, UK. Making light of gravity - Poster presentation.
- 09/2002: Gargonza (Italy) RTN annual meeting The Physics of the IGM - Oral presentation
- 11/2002: Roma (Italy). Convegno nazionale di Cosmologia - Oral presentation
- 06/2003: Blois (France). XVth Rencontres de Blois Physical Cosmology - Oral presentation
- 09/2003: Ile dÓleron (France). RTN annual meeting The Physics of the IGM - Oral presentation
- 10/2003: Vulcano (Italy). International workshop on Modelling the intergalactic and intracluster media - Oral presentation
- 04/2004: La Thuile (Italy). XXXIXth Rencontres de Moriond on Exploring the Universe - Oral presentation
- 05/2004: Haifa (Israel). Meeting Mass and Light in the Universe - Oral presentation
- 09/2004: Leiden (Holland). RTN annual meeting The Physics of the IGM - Oral presentation
- 10/2004: Novigrad (Croatia). Conference Baryons in dark matter halos - Oral presentation

- 11/2004: Santa Barbara (US). Workshop Galaxies-Intergalactic Medium Interactions - Oral presentation

- 03/2005: Shanghai (China). IAU 1999 Colloquium Probing galaxies through quasar absorption lines - Oral presentation

- 04/2005: Granada (Spain). Cosmology Workshop - Oral presentation

- 06/2005: Trieste (Italy). Conference on Computational Cosmology - Oral presentation

- 08/2005: Chiemsee (Germany). IGM Workshop. Oral Presentation

- 10/2005: Austin (Texas, US). The Lyman-α forest as a cosmological probe at the Frank N. Bash 2005 symposium - Invited review

- 06/2006: Valencia (Spain). Bernard's cosmic stories conference - Oral presentation

- 09/2006: Conca Specchiulla (Lecce, Italy). Constraints on neutrinos from Lyman-α - Invited

- 01/2007: Virgo Meeting (Leiden, Holland) oral presentation: The high redshift Lyman-α forest and the nature of dark matter

- 04/2007: IFAE conference (Naples, Italy) Fundamental Physics with the Intergalactic Medium - Invited

- 07/2007: Conference HI survival trough cosmic time - Oral presentation

- 02/2008: Entapp (DESY, Hamburg) - Invited chair of DM session and oral presentation

- 02/2008: Conference at APC (Paris) Dark matter at small scales - Oral presentation

- 04/2008: IFAE 2008 Bologna - Oral presentation

- 06/2008: IAP colloquium 2008 (Paris) The universe above z=3 - Oral presentation

- 02/2009: Galilei Institute Florence (Italy). Dark Matter' - Oral presentation

- 06/2009: COSMO 09 Conference CERN (Switzerland) - Invited plenary

- 02/2010: La Thuile (Italy) Rencontres de Moriond on Cosmolgy - Oral presentation

- 06/2010: ESF workshop The almost Gaussian Universe = Non-Gaussianity with high redshift large scale structure probes - Saclay, France - Oral presentation

- 09/2010: Workshop -Metal presso El Escorial Madrid - Chairman/organizer of a parallel session

- 07/2010: International Conference Darkness Visible (Cambridge, UK) - Oral presentation

- 05/2011: CosmoFirstObjects conference in Marseille, France - Oral presentation

- 06/2011: PPC workshop at CERN (Geneva, Switzerland): Vth international workshop on the interconnection between particle physics and cosmology - Oral presentation
- 07/2011: Cosmology School in Santa Fe (New Mexico, US) - Oral presentation
- 04/2012: 2012 MPA-IfT Spring Workshop on LSS (La Cristalera, Madrid) - Oral presentation
- 05/2012: Euclid consortium meeting (Leiden, France) - Oral presentation
- 05/2013: Euclid consortium meeting (Marseille, France) - Oral presentation
- 05/2013: SAIT 2013 (Società Italiana di Astronomia, Bologna Italy) - Invited
- 06/2013: Intergalactic Interaction Workshop (Edinburgh, UK) - Invited
- 07/2013: Ripples in the cosmos conference (Durham, UK) - Oral presentation
- 07/2013: Tracing the cosmic-structure with galaxy clusters at Sexten (Italy) - Oral presentation
- 09/2013: SIF (Societa Italiana di Fisica) Trieste, Italy - Invited
- 09/2013: Cosmological constraints on massive neutrinos at ICTP Workshop on the Origin of Neutrino Mass - From Majorana to LHC - Invited
- 12/2013: Euclid OULE3 meeting (Nice, France) - Oral presentation
- 02/2014: Munich (Germany), Interdisciplinary Cluster Workshop on Dark Matter - Invited
- 05/2014: SAIT 2014, Milano (Italy) - Invited
- 06/2014: APP14 TeVPA/IDM (Amsterdam, Netherlands) - Invited plenary speaker
- 07/2014: EWASS 2014 (Geneve, Switzerland) - Invited parallel
- 08/2014: Conference high redshift baryons (ICTP, Trieste) - Oral presentation
- 09/2015: COSMO-15 Conference in Warsaw (Poland) - Invited plenary speaker
- 06/2016: Neutrino 2016 conference in London (UK) - Invited plenary speaker
- 01/2017: Berkeley conference on Intensity Mapping (US) - Invited speaker
- 04/2017: PONT 2017 Avignone (France) Progress on old and new themes in Cosmology - Invited speaker
- 07/2017: "Whereabouts and Physics of the Roaming Baryons in the Universe" Conference, Sexten, Italy - Invited review talk
- 09/2017: Lecturer at cosmology and ELT science school at Terceira (Azores, Portugal) school organizer: C. Martins.

- 09/2017: Invited talk at SIF (Trento)
- 10/2017: Plenary speaker at Dark Universe Conference, Munich (Germany)
- 06/2018: Invited talk at Cosmology conference on LSS/CMB at Ferrara University (Italy)
- 06/2018: Invited talk at Haifa Technion at the workshop on the LSS organized by Dr. Desjacques (Israel)
- 09/2018: Invited at KAVLI IPMU conference on the Intergalactic Medium - Tokyo (Japan)
- 11/2018: Conference computational methods in astrophysics at Henri Poincare Institute (Paris). Invited.
- 06/2019: Talks at Euclid Consortium meeting (parallel session on cosmological simulations and LSS corr. funct.)
- 09/2019: Invited talk at Kavli 10yr conference in Cambridge (UK)
- 09/2019: Invited Plenary speaker at COSMO-19, Aachen (Germany)
- 12/2019: Convener of Cosmology LSS session at Texas symposium (Portsmouth, UK)
- 01/2020: Invited lecturer at multi-messenger astrophysics school in Asiago, Italy
- 01/2020: Invited speaker at Next Generation Radio Telescopes and Cosmology (Sexten, Italy)
- 02/2020: Invited speaker at Axion Cosmology and Laboratory day at Padova University (Italy)
- 07/2020: Convener at PASCOS 2020 (Heidelberg, Germany) - postponed
- 09/2021: Plenary review talk at TAUP 2021 (Valencia, Spain)
- 09/2021: Invited talk at Portorose Physics of the Flavourful Universe Conference (Slovenia)
- 10/2021: Invited talk at SKAO national italian meeting (online)

Trieste, 30th November 2021
Matteo Viel

Publications

287 total publications
216 refereed publications: **nr. [1-216]**
70 non-refereed publications **nr. [217-287]**
(from https://ui.adsabs.harvard.edu/classic-form/)

6 Selected first author publications on structure formation and fundamental physics with ∼2000 total citations on NASA/ADS: [?,?,?,?,?,?]

List of Publications

[1] Matteo **Viel**, Julien Lesgourgues, Martin G. Haehnelt, Sabino Matarrese, and Antonio Riotto. Constraining warm dark matter candidates including sterile neutrinos and light gravitinos with WMAP and the Lyman-α forest. *PhRvD*, 71(6):063534, March 2005.

[2] Matteo **Viel**, Julien Lesgourgues, Martin G. Haehnelt, Sabino Matarrese, and Antonio Riotto. Can Sterile Neutrinos Be Ruled Out as Warm Dark Matter Candidates? *Physical Review Letters*, 97(7):071301, August 2006.

[3] Matteo **Viel**, George D. Becker, James S. Bolton, Martin G. Haehnelt, Michael Rauch, and Wallace L. W. Sargent. How Cold Is Cold Dark Matter? Small-Scales Constraints from the Flux Power Spectrum of the High-Redshift Lyman-α Forest. *Physical Review Letters*, 100(4):041304, February 2008.

[4] Matteo **Viel**, Martin G. Haehnelt, and Volker Springel. The effect of neutrinos on the matter distribution as probed by the intergalactic medium. *JCAP*, 2010(6):015, June 2010.

[5] Matteo **Viel**, George D. Becker, James S. Bolton, and Martin G. Haehnelt. Warm dark matter as a solution to the small scale crisis: New constraints from high redshift Lyman-α forest data. *PhRvD*, 88(4):043502, August 2013.

[6] Matteo **Viel** and Martin G. Haehnelt. Cosmological and astrophysical parameters from the Sloan Digital Sky Survey flux power spectrum and hydrodynamical simulations of the Lyman α forest. *MNRAS*, 365(1):231–244, January 2006.

[7] James S. Bolton, Prakash Gaikwad, Martin G. Haehnelt, Tae-Sun Kim, Fahad Nasir, Ewald Puchwein, Matteo **Viel**, and Bart P. Wakker. Limits on non-canonical heating and turbulence in the intergalactic medium from the low redshift Lyman-alpha forest. *arXiv e-prints*, page arXiv:2111.09600, November 2021.

[8] Euclid Collaboration, A. Pocino, I. Tutusaus, F. J. Castander, P. Fosalba, M. Crocce, A. Porredon, S. Camera, V. Cardone, S. Casas, T. Kitching, F. Lacasa, M. Martinelli, A. Pourtsidou, Z. Sakr, S. Andreon, N. Auricchio, C. Baccigalupi, A. Balaguera-Antolínez, M. Baldi, A. Balestra, S. Bardelli, R. Bender, A. Biviano, C. Bodendorf, D. Bonino, A. Boucaud, E. Bozzo, E. Branchini, M. Brescia, J. Brinchmann, C. Burigana, R. Cabanac, V. Capobianco, A. Cappi, C. S. Carvalho, M. Castellano, G. Castignani, S. Cavuoti,

A. Cimatti, R. Cledassou, C. Colodro-Conde, G. Congedo, C. J. Conselice, L. Conversi, Y. Copin, L. Corcione, A. Costille, J. Coupon, H. M. Courtois, M. Cropper, J. G. Cuby, A. Da Silva, S. de la Torre, D. Di Ferdinando, F. Dubath, C. Duncan, X. Dupac, S. Dusini, S. Farrens, P. G. Ferreira, I. Ferrero, F. Finelli, S. Fotopoulou, M. Frailis, E. Franceschi, S. Galeotta, B. Garilli, W. Gillard, B. Gillis, C. Giocoli, G. Gozaliasl, J. Graciá-Carpio, F. Grupp, L. Guzzo, W. Holmes, F. Hormuth, K. Jahnke, E. Keihanen, S. Kermiche, A. Kiessling, C. C. Kirkpatrick, M. Kunz, H. Kurki-Suonio, S. Ligori, P. B. Lilje, I. Lloro, D. Maino, E. Maiorano, O. Mansutti, O. Marggraf, N. Martinet, F. Marulli, R. Massey, S. Maurogordato, E. Medinaceli, S. Mei, M. Meneghetti, R. Benton Metcalf, G. Meylan, M. Moresco, B. Morin, L. Moscardini, E. Munari, R. Nakajima, C. Neissner, R. C. Nichol, S. Niemi, J. Nightingale, C. Padilla, S. Paltani, F. Pasian, L. Patrizii, K. Pedersen, W. J. Percival, V. Pettorino, S. Pires, G. Polenta, M. Poncet, L. Popa, D. Potter, L. Pozzetti, F. Raison, A. Renzi, J. Rhodes, G. Riccio, E. Romelli, M. Roncarelli, E. Rossetti, R. Saglia, A. G. Sánchez, D. Sapone, R. Scaramella, P. Schneider, V. Scottez, A. Secroun, G. Seidel, S. Serrano, C. Sirignano, G. Sirri, L. Stanco, F. Sureau, A. N. Taylor, M. Tenti, I. Tereno, R. Teyssier, R. Toledo-Moreo, A. Tramacere, E. A. Valentijn, L. Valenziano, J. Valivita, T. Vassallo, M. **Viel**, Y. Wang, N. Welikala, L. Whittaker, A. Zacchei, G. Zamorani, J. Zoubian, and E. Zucca. Euclid preparation. XII. Optimizing the photometric sample of the Euclid survey for galaxy clustering and galaxy-galaxy lensing analyses. *A&A*, 655:A44, November 2021.

[9] Andrea Moneti, H. J. McCracken, M. Shuntov, O. B. Kauffmann, P. Capak, I. Davidzon, O. Ilbert, C. Scarlata, S. Toft, J. Weaver, R. Chary, J. Cuby, A. L. Faisst, D. C. Masters, C. McPartland, B. Mobasher, D. B. Sanders, R. Scaramella, D. Stern, I. Szapudi, H. Teplitz, L. Zalesky, A. Amara, N. Auricchio, C. Bodendorf, D. Bonino, E. Branchini, S. Brau-Nogue, M. Brescia, J. Brinchmann, V. Capobianco, C. Carbone, J. Carretero, F. J. Castander, M. Castellano, S. Cavuoti, A. Cimatti, R. Cledassou, G. Congedo, C. J. Conselice, L. Conversi, Y. Copin, L. Corcione, A. Costille, M. Cropper, A. Da Silva, H. Degaudenzi, M. Douspis, F. Dubath, C. A. J. Duncan, X. Dupac, S. Dusini, S. Farrens, S. Ferriol, P. Fosalba, M. Frailis, E. Franceschi, M. Fumana, B. Garilli, B. Gillis, C. Giocoli, B. R. Granett, A. Grazian, F. Grupp, S. V. H. Haugan, H. Hoekstra, W. Holmes, F. Hormuth, P. Hudelot, K. Jahnke, S. Kermiche, A. Kiessling, M. Kilbinger, T. Kitching, R. Kohley, M. Kuemmel, M. Kunz, H. Kurki-Suonio, S. Ligori, P. B. Lilje, I. Lloro, E. Maiorano, O. Mansutti, O. Marggraf, K. Markovic, F. Marulli, R. Massey, S. Maurogordato, M. Meneghetti, E. Merlin, G. Meylan, M. Moresco, L. Moscardini, E. Munari, S. M. Niemi, C. Padilla, S. Paltani, F. Pasian, K. Pedersen, S. Pires, M. Poncet, L. Popa, L. Pozzetti, F. Raison, R. Rebolo, J. Rhodes, H. Rix, M. Roncarelli, E. Rossetti, R. Saglia, P. Schneider, A. Secroun, G. Seidel, S. Serrano, C. Sirignano, G. Sirri, L. Stanco, P. Talladа-Crespi, A. N. Taylor, I. Tereno, R. Toledo-Moreo, F. Torradeflot, Y. Wang, N. Welikala, J. Weller, G. Zamorani, J. Zoubian, S. Andreon, S. Bardelli, S. Camera, J. Gracia-Carpio, E. Medinaceli, S. Mei, G. Polenta, E. Romelli, F. Sureau, M. Tenti, T. Vassallo, A. Zacchei, E. Zucca, C. Baccigalupi, A. Balaguera-Antolinez, F. Bernardeau, A. Biviano, M. Bolzonella, E. Bozzo, C. Burigana, R. Cabanac, A. Cappi, C. S. Carvalho, S. Casas, G. Castignani, C. Colodro-Conde, J. Coupon, H. M. Courtois, D. Di Ferdinando, M. Farina, F. Finelli, P. Flose-Reimberg, S. Fotopoulou, S. Galeotta, K. Ganga, J. Garcia-Bellido, E. Gaztanaga,

G. Gozaliasl, I. Hook, B. Joachimi, V. Kansal, E. Keihanen, C. C. Kirkpatrick, V. Lindholm, G. Mainetti, D. Maino, R. Maoli, M. Martinelli, N. Martinet, M. Maturi, R. B. Metcalf, G. Morgante, N. Morisset, A. Nucita, L. Patrizii, D. Potter, A. Renzi, G. Riccio, A. G. Sanchez, D. Sapone, M. Schirmer, M. Schultheis, V. Scottez, E. Sefusatti, R. Teyssier, O. Tubio, I. Tutusaus, J. Valiviita, M. **Viel**, and H. Hildebrandt. Euclid preparation: XVIII. Cosmic Dawn Survey. Spitzer observations of the Euclid deep fields and calibration fields. *arXiv e-prints*, page arXiv:2110.13928, October 2021.

[10] F. Lepori, I. Tutusaus, C. Viglione, C. Bonvin, S. Camera, F. J. Castander, R. Durrer, P. Fosalba, G. Jelic-Cizmek, M. Kunz, J. Adamek, S. Casas, M. Martinelli, Z. Sakr, D. Sapone, A. Amara, N. Auricchio, C. Bodendorf, D. Bonino, E. Branchini, M. Brescia, J. Brinchmann, V. Capobianco, C. Carbone, J. Carretero, M. Castellano, S. Cavuoti, A. Cimatti, R. Cledassou, G. Congedo, C. J. Conselice, L. Conversi, Y. Copin, L. Corcione, F. Courbin, A. Da Silva, H. Degaudenzi, M. Douspis, F. Dubath, X. Dupac, S. Dusini, A. Ealet, S. Farrens, S. Ferriol, E. Franceschi, M. Fumana, B. Garilli, W. Gillard, B. Gillis, C. Giocoli, A. Grazian, F. Grupp, L. Guzzo, S. V. H. Haugan, W. Holmes, F. Hormuth, P. Hudelot, K. Jahnke, S. Kermiche, A. Kiessling, M. Kilbinger, T. Kitching, M. Kümmel, H. Kurki-Suonio, S. Ligori, P. B. Lilje, I. Lloro, O. Mansutti, O. Marggraf, K. Markovic, F. Marulli, R. Massey, S. Maurogordato, M. Melchior, M. Meneghetti, E. Merlin, G. Meylan, M. Moresco, L. Moscardini, E. Munari, R. Nakajima, S. M. Niemi, C. Padilla, S. Paltani, F. Pasian, K. Pedersen, W. J. Percival, V. Pettorino, S. Pires, M. Poncet, L. Popa, L. Pozzetti, F. Raison, J. Rhodes, M. Roncarelli, E. Rossetti, R. Saglia, P. Schneider, A. Secroun, G. Seidel, S. Serrano, C. Sirignano, G. Sirri, L. Stanco, J. L. Starck, P. Tallada-Crespí, A. N. Taylor, I. Tereno, R. Toledo-Moreo, F. Torradeflot, E. A. Valentijn, L. Valenziano, Y. Wang, J. Weller, G. Zamorani, J. Zoubian, S. Andreon, S. Bardelli, G. Fabbian, J. Graciá-Carpio, D. Maino, E. Medinaceli, S. Mei, A. Renzi, E. Romelli, F. Sureau, T. Vassallo, A. Zacchei, E. Zucca, C. Baccigalupi, A. Balaguera-Antolínez, F. Bernardeau, A. Biviano, A. Blanchard, M. Bolzonella, S. Borgani, E. Bozzo, C. Burigana, R. Cabanac, A. Cappi, C. S. Carvalho, G. Castignani, C. Colodro-Conde, J. Coupon, H. M. Courtois, J. G. Cuby, S. Davini, S. de la Torre, D. Di Ferdinando, M. Farina, P. G. Ferreira, F. Finelli, S. Galeotta, K. Ganga, J. Garcia-Bellido, E. Gaztanaga, G. Gozaliasl, I. M. Hook, S. Ilić, B. Joachimi, V. Kansal, E. Keihanen, C. C. Kirkpatrick, V. Lindholm, G. Mainetti, R. Maoli, N. Martinet, M. Maturi, R. B. Metcalf, P. Monaco, G. Morgante, J. Nightingale, A. Nucita, L. Patrizii, V. Popa, D. Potter, G. Riccio, A. G Sánchez, M. Schirmer, M. Schultheis, V. Scottez, E. Sefusatti, A. Tramacere, J. Valiviita, M. **Viel**, and H. Hildebrandt. Euclid preparation: XIX. Impact of magnification on photometric galaxy clustering. *arXiv e-prints*, page arXiv:2110.05435, October 2021.

[11] Wolfgang Enzi, Riccardo Murgia, Oliver Newton, Simona Vegetti, Carlos Frenk, Matteo **Viel**, Marius Cautun, Christopher D. Fassnacht, Matt Auger, Giulia Despali, John McKean, Léon V. E. Koopmans, and Mark Lovell. Joint constraints on thermal relic dark matter from strong gravitational lensing, the Ly α forest, and Milky Way satellites. *MNRAS*, 506(4):5848–5862, October 2021.

[12] Margherita Molaro, Vid Iršič, James S. Bolton, Laura C. Keating, Ewald Puchwein, Prakash Gaikwad, Martin G. Haehnelt, Girish Kulkarni, and Matteo **Viel**. The effect of inhomoge-

neous reionisation on the Lyman-α forest power spectrum at redshift $z > 4$: implications for thermal parameter recovery. *arXiv e-prints*, page arXiv:2109.06897, September 2021.

[13] Maria Berti, Marta Spinelli, Balakrishna S. Haridasu, Matteo **Viel**, and Alessandra Silvestri. Constraining beyond ΛCDM models with 21cm intensity mapping forecast observations combined with latest CMB data. *arXiv e-prints*, page arXiv:2109.03256, September 2021.

[14] Hasti Khoraminezhad, Pauline Vielzeuf, Titouan Lazeyras, Carlo Baccigalupi, and Matteo **Viel**. Cosmic voids and BAO with relative baryon-CDM perturbations. *arXiv e-prints*, page arXiv:2109.02949, September 2021.

[15] Yuxiang Qin, Andrei Mesinger, Sarah E. I. Bosman, and Matteo **Viel**. Reionization and galaxy inference from the high-redshift Ly α forest. *MNRAS*, 506(2):2390–2407, September 2021.

[16] S. A. Stanford, D. Masters, B. Darvish, D. Stern, J. G. Cohen, P. Capak, N. Hernitschek, I. Davidzon, J. Rhodes, D. B. Sanders, B. Mobasher, F. J. Castander, S. Paltani, N. Aghanim, A. Amara, N. Auricchio, A. Balestra, R. Bender, C. Bodendorf, D. Bonino, E. Branchini, J. Brinchmann, V. Capobianco, C. Carbone, J. Carretero, R. Casas, M. Castellano, S. Cavuoti, A. Cimatti, R. Cledassou, C. J. Conselice, L. Corcione, A. Costille, M. Cropper, H. Degaudenzi, M. Douspis, F. Dubath, S. Dusini, P. Fosalba, M. Frailis, E. Franceschi, P. Franzetti, M. Fumana, B. Garilli, C. Giocoli, F. Grupp, S. V. H. Haugan, H. Hoekstra, W. Holmes, F. Hormuth, P. Hudelot, K. Jahnke, A. Kiessling, M. Kilbinger, T. Kitching, B. Kubik, M. Kümmel, M. Kunz, H. Kurki-Suonio, R. Laureijs, S. Ligori, P. B. Lilje, I. Lloro, E. Maiorano, O. Marggraf, K. Markovic, R. Massey, M. Meneghetti, G. Meylan, L. Moscardini, S. M. Niemi, C. Padilla, F. Pasian, K. Pedersen, V. Pettorino, S. Pires, M. Poncet, L. Popa, L. Pozzetti, F. Raison, M. Roncarelli, E. Rossetti, R. Saglia, R. Scaramella, P. Schneider, A. Secroun, G. Seidel, S. Serrano, C. Sirignano, G. Sirri, A. N. Taylor, H. I. Teplitz, I. Tereno, R. Toledo-Moreo, E. A. Valentijn, L. Valenziano, G. A. Verdoes Kleijn, Y. Wang, G. Zamorani, J. Zoubian, M. Brescia, G. Congedo, L. Conversi, Y. Copin, S. Kermiche, R. Kohley, E. Medinaceli, S. Mei, M. Moresco, B. Morin, E. Munari, G. Polenta, F. Sureau, P. Tallada Crespí, T. Vassallo, A. Zacchei, S. Andreon, H. Aussel, C. Baccigalupi, A. Balaguera-Antolínez, M. Baldi, S. Bardelli, A. Biviano, E. Borsato, E. Bozzo, C. Burigana, R. Cabanac, S. Camera, A. Cappi, C. S. Carvalho, S. Casas, G. Castignani, C. Colodro-Conde, J. Coupon, H. M. Courtois, J. G. Cuby, A. Da Silva, S. de la Torre, D. Di Ferdinando, C. A. J. Duncan, X. Dupac, M. Fabricius, M. Farina, S. Farrens, P. G. Ferreira, F. Finelli, P. Flose-Reimberg, S. Fotopoulou, S. Galeotta, K. Ganga, W. Gillard, G. Gozaliasl, J. Graciá-Carpio, E. Keihanen, C. C. Kirkpatrick, V. Lindholm, G. Mainetti, D. Maino, N. Martinet, F. Marulli, M. Maturi, S. Maurogordato, R. B. Metcalf, R. Nakajima, C. Neissner, J. W. Nightingale, A. A. Nucita, L. Patrizii, D. Potter, A. Renzi, G. Riccio, E. Romelli, A. G. Sánchez, D. Sapone, M. Schirmer, M. Schultheis, V. Scottez, L. Stanco, M. Tenti, R. Teyssier, F. Torradeflot, J. Valiviita, M. **Viel**, L. Whittaker, and E. Zucca. Euclid Preparation. XIV. The Complete Calibration of the Color-Redshift Relation (C3R2) Survey: Data Release 3. *ApJS*, 256(1):9, September 2021.

[17] Adrian E. Bayer, Francisco Villaescusa-Navarro, Elena Massara, Jia Liu, David N. Spergel, Licia Verde, Benjamin D. Wandelt, Matteo **Viel**, and Shirley Ho. Detecting Neutrino Mass by Combining Matter Clustering, Halos, and Voids. *ApJ*, 919(1):24, September 2021.

[18] Balakrishna S. Haridasu, Matteo **Viel**, and Nicola Vittorio. Sources of H_0-tension in dark energy scenarios. *PhRvD*, 103(6):063539, March 2021.

[19] T. S. Kim, B. P. Wakker, F. Nasir, R. F. Carswell, B. D. Savage, J. S. Bolton, A. J. Fox, M. **Viel**, M. G. Haehnelt, J. C. Charlton, and B. E. Rosenwasser. The evolution of the low-density HI intergalactic medium from z = 3.6 to 0: data, transmitted flux, and H I column density,. *MNRAS*, 501(4):5811–5833, March 2021.

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[21] Hasti Khoraminezhad, Titouan Lazeyras, Raul E. Angulo, Oliver Hahn, and Matteo **Viel**. Quantifying the impact of baryon-CDM perturbations on halo clustering and baryon fraction. *JCAP*, 2021(3):023, March 2021.

[22] Titouan Lazeyras, Francisco Villaescusa-Navarro, and Matteo **Viel**. The impact of massive neutrinos on halo assembly bias. *JCAP*, 2021(3):022, March 2021.

[23] G. Parimbelli, S. Anselmi, M. **Viel**, C. Carbone, F. Villaescusa-Navarro, P. S. Corasaniti, Y. Rasera, R. Sheth, G. D. Starkman, and I. Zehavi. The effects of massive neutrinos on the linear point of the correlation function. *JCAP*, 2021(1):009, January 2021.

[24] Euclid Collaboration, G. Desprez, S. Paltani, J. Coupon, I. Almosallam, A. Alvarez-Ayllon, V. Amaro, M. Brescia, M. Brodwin, S. Cavuoti, J. De Vicente-Albendea, S. Fotopoulou, P. W. Hatfield, W. G. Hartley, O. Ilbert, M. J. Jarvis, G. Longo, M. M. Rau, R. Saha, J. S. Speagle, A. Tramacere, M. Castellano, F. Dubath, A. Galametz, M. Kuemmel, C. Laigle, E. Merlin, J. J. Mohr, S. Pilo, M. Salvato, S. Andreon, N. Auricchio, C. Baccigalupi, A. Balaguera-Antolínez, M. Baldi, S. Bardelli, R. Bender, A. Biviano, C. Bodendorf, D. Bonino, E. Bozzo, E. Branchini, J. Brinchmann, C. Burigana, R. Cabanac, S. Camera, V. Capobianco, A. Cappi, C. Carbone, J. Carretero, C. S. Carvalho, R. Casas, S. Casas, F. J. Castander, G. Castignani, A. Cimatti, R. Cledassou, C. Colodro-Conde, G. Congedo, C. J. Conselice, L. Conversi, Y. Copin, L. Corcione, H. M. Courtois, J. G. Cuby, A. Da Silva, S. de la Torre, H. Degaudenzi, D. Di Ferdinando, M. Douspis, C. A. J. Duncan, X. Dupac, A. Ealet, G. Fabbian, M. Fabricius, S. Farrens, P. G. Ferreira, F. Finelli, P. Fosalba, N. Fourmanoit, M. Frailis, E. Franceschi, M. Fumana, S. Galeotta, B. Garilli, W. Gillard, B. Gillis, C. Giocoli, G. Gozaliasl, J. Graciá-Carpio, F. Grupp, L. Guzzo, M. Hailey, S. V. H. Haugan, W. Holmes, F. Hormuth, A. Humphrey, K. Jahnke, E. Keihanen, S. Kermiche, M. Kilbinger, C. C. Kirkpatrick, T. D. Kitching, R. Kohley, B. Kubik, M. Kunz, H. Kurki-Suonio, S. Ligori, P. B. Lilje, I. Lloro, D. Maino, E. Maiorano, O. Marggraf, K. Markovic, N. Martinet, F. Marulli, R. Massey, M. Maturi, N. Mauri, S. Maurogordato, E. Medinaceli, S. Mei, M. Meneghetti, R. Benton Metcalf, G. Meylan, M. Moresco, L. Moscardini, E. Munari, S. Niemi, C. Padilla, F. Pasian, L. Patrizii, V. Pettorino, S. Pires, G. Polenta, M. Poncet, L. Popa, D. Potter, L. Pozzetti, F. Raison, A. Renzi, J. Rhodes, G. Riccio, E. Rossetti,

R. Saglia, D. Sapone, P. Schneider, V. Scottez, A. Secroun, S. Serrano, C. Sirignano, G. Sirri, L. Stanco, D. Stern, F. Sureau, P. Tallada Crespí, D. Tavagnacco, A. N. Taylor, M. Tenti, I. Tereno, R. Toledo-Moreo, F. Torradeflot, L. Valenziano, J. Valiviita, T. Vassallo, M. **Viel**, Y. Wang, N. Welikala, L. Whittaker, A. Zacchei, G. Zamorani, J. Zoubian, and E. Zucca. Euclid preparation. X. The Euclid photometric-redshift challenge. *A&A*, 644:A31, December 2020.

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