

## Pierros Ntelis | Curriculum Vitae



Personal Information	Born on September 18th, 1990 in Athens, Greece Greek citizenship
Contact	Marseille, France e-mail: <a href="mailto:ntelis.pierros-at-gmail.com">ntelis.pierros-at-gmail.com</a> , mobile: 0033 7 82 34 34 39
Research interests	Mathematics, cosmology, theoretical physics, high energy astrophysics, large scale structures - theoretical and observational aspects
Academic Employment	2022-Today <b>International Bilingual School of Provence</b> Mathematics and Physics Teacher for <a href="#">IB</a> , <a href="#">IGCSE</a> 2018-2023 <a href="#">Maitre De Conference</a> , at Aix-Marseille Univ 2018-2020 <b>Center of Particle Physics of Marseille, Aix University</b> C.N.E.S. <a href="#">Postdoctoral Research Associate</a> 2014-2017 <b>Astroparticle and Cosmology Group, Université de Paris</b> PhD thesis: <a href="#">Probing Cosmology with the homogeneity scale of the universe through large scale structure surveys</a> , supervised by Dr. J.C. Hamilton 2013 <b>National Technical University of Athens</b> Diploma-Thesis: <a href="#">Hawking Radiation</a> supervised by Prof.K.Anagnostopoulos, (6 months) 2012 <b>National Observatory of Athens</b> Internship: <i>Calculation of the age and chemical compositions of star clusters</i> , supervised by Dr. A. Dapergolas, (2 months)
Education	2014-2017 <b>Ph.D., Université de Paris, Denis-Diderot</b> <a href="#">Fundamental Physics, Cosmology</a> , 1st upper class honours 2013-2014 <b>M.Sc., University Paris 6, Paris 7, Paris 11</b> <a href="#">Nuclei, Particles, Astroparticles &amp; Cosmology</a> , Grade: 14.9/20 2008-2013 <b>B.A., National Technical University of Athens</b> <a href="#">School of Applied Mathematical &amp; Physical Science</a> , Grade: 8.5/10 2002-2008 <b>Lyceum of kareas, Athens</b> , Grade: 18.7/20
Languages	English (fluent), French (intermediate), Greek (native)
Memberships	05/2024- , <a href="#">CosmoVerse network</a> , <a href="#">Cosmic WISPers network</a> 06/2025- , <a href="#">Fundamental challenges in physics theories network</a> 2018-2021, <a href="#">Euclid Consortium</a> , <a href="#">DESI Survey</a> 2014-2017, <a href="#">SDSS-III</a> , <a href="#">BOSS Survey</a>
Awards and Fellowships	2024-2025, <a href="#">CosmoVerse STSM grant E-COST-GRANT-CA21136</a> , (2 week) 2018-2020, <a href="#">C.N.E.S. Post Doctoral Fellowship</a> , (2+1 years) 2014-2017, <a href="#">STEP-UP UnivEarth Sciences, PhD Fellowship</a> 2014 , <a href="#">Paris Denis-Diderot University, Internship Fellowship</a> , (2 months) 2013-2014, <a href="#">Master Award Fellowship, J.S. LATSIS FOUNDATION</a> , (1 year) 2012 , <a href="#">IKY E.S.P.A., Internship Award Fellowship</a> , (2 months)
Publications	<a href="#">ArXiv</a> , <a href="#">ADS</a> , <a href="#">I-HEP</a> , <a href="#">RG</a> , <a href="#">Linkedin</a> , <a href="#">COSMOPIT</a> , <a href="#">ORCID</a> , <a href="#">GS</a> , <a href="#">Utube</a>
Interdisciplinary Skills	<a href="#">Maths</a> , <a href="#">efficient communicational skills and learning</a> , <a href="#">data and stat analysis</a> , <a href="#">Mathematical Physics</a> , <a href="#">AI</a> , <a href="#">Python</a> , <a href="#">C/C++</a> , <a href="#">Fortran</a> , <a href="#">Mathematica</a> , <a href="#">L<sup>A</sup>T<sub>E</sub>X</a> , <a href="#">HPC</a> , <a href="#">Unix/Linux</a> , <a href="#">CAMB</a> , <a href="#">CLASS</a> , <a href="#">COSMOPIT</a> , <a href="#">mangle</a> , <a href="#">Euclid softs</a> ,

Teaching & Academic Services	<p>2025, <a href="#">Auckland Univ., New Zealand</a>, <a href="#">Advanced Math methods in cosmology</a>, (1h)</p> <p>2025, <a href="#">CPPM, France</a>, <a href="#">Advanced Math methods in cosmology</a>, (1h)</p> <p>2025, <a href="#">New U.U., Uzbekistan</a>, <a href="#">Advanced Math methods in cosmology</a>, (1h)</p> <p>2025, <a href="#">SSM, Napoli</a>, <a href="#">STSM: Tensions and Non-Local Analytical Dynamics</a>, (1w)</p> <p>2024, <a href="#">ISSA, Malta Univ.</a>, <a href="#">STSM: (Non-)Riemannian Cosmic Tensions</a>, (1w)</p> <p>2024, <a href="#">Perimeter Institute</a>, <a href="#">Celestial Holography Summerschool participant</a>, (1w)</p> <p>2024, <a href="#">Cosmo From Home</a>, Session host in <a href="#">Dynamical System in Cosmology</a>, (1h)</p> <p>2023, <a href="#">UCO, Benasque</a>, Host in <a href="#">Modifications of Gravity</a> and <a href="#">Higher-order stats</a>, (5h)</p> <p>2023, <a href="#">Cosmo From Home</a>, Session host in Homogeneity, Simulations and LSS, (5h)</p> <p>2022-, <a href="#">IBS, Mathematics and Physics for High School Students</a>, (6×4 h Seminars, 2.5y)</p> <p>2021, <a href="#">Euclid</a>, Science talk: Overview of impact of interlopers on PNG, (1h Seminar)</p> <p>2020, <a href="#">Aix-University</a>, From Horndeski to AofEFT, (40' Seminar)</p> <p>2020, <a href="#">Aix-University</a>, M2 intern supervisor on LSS Diagnostics, (25 hours)</p> <p>2020, <a href="#">Aix-University</a>, M1 intern supervisor on BAO/neutrinos, (3 month)</p> <p>2020, <a href="#">Aix-University</a>, M1 intern reporter on Strong Lensing, (1h exam)</p> <p>2020, <a href="#">Aix-University</a>, M1 intern supervisor on BAO, (1 month)</p> <p>2020, <a href="#">DESI</a>, Participation on spectra Visual Inspection ( 2 months), (2nd Prize in SR)</p> <p>2019, <a href="#">Aix-University</a>, <a href="#">Homogeneity with Multitracers</a>, (2h Seminar)</p> <p>2019, <a href="#">Aix-University</a>, <a href="#">A note on lss, Summer School</a>, (6h Seminar)</p> <p>2018, <a href="#">Renoir</a>, co-organiser of science meetings "Show Plot Club", (weekly, 3y)</p> <p>2018, LSS survey internal reviewer service (DESI, Euclid) (3y)</p> <p>2018, <a href="#">CPPM, LAM</a>, Participation on QC tests of <a href="#">NISP Euclid instrument</a>, (6 months)</p> <p>2018, <a href="#">Aix-University</a>, Scientific Watch, (6h Seminars)</p> <p>2018, <a href="#">SEMFE, NTUA</a>, <a href="#">Observational Cosmology</a>, (1.5h Seminar)</p> <p>2018, <a href="#">UiO</a>, <a href="#">What can fractality tell us about the universe?</a>, (1h seminar)</p> <p>2018, <a href="#">CPPM</a>, M1 intership supervisor on BAO, (2 months)</p> <p>2018, <a href="#">Aix-University</a>, <a href="#">A note on lss, Summer School</a>, (3h Seminar)</p> <p>2017, <a href="#">SEMFE, NTUA</a>, <a href="#">Exploring cosmic homogeneity</a>, (1.5h Seminar)</p> <p>2016-, Referee Report, MNRAS journal</p> <p>2015, <a href="#">Paris-Denis Diderot</a>, Statistical Methods, (4 months)</p> <p>2014, <a href="#">APC, Paris 7</a>, co-organiser of cosmology journal club, (weekly, 3y)</p>
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Conferences	2025, <a href="#">The Dark Side of the Universe</a> , <a href="#">FAT dynamics to cosmology</a> (25' Talk)
Talks/Posters	2025, <a href="#">Cosmo From Home</a> , <a href="#">Advanced math in cosmology</a> (25' Talk)
	2024, <a href="#">50 yr of Horndeski at PI</a> , <a href="#">A probabilistic expanding universe under FA</a> , (Poster)
	2024, <a href="#">Cosmo From Home</a> , <a href="#">A probabilistic expanding universe under FA</a> , (25' talk)
	2023, <a href="#">NEB</a> , <a href="#">New avenues of functors of actions theories</a> , (20' Talk)
	2023, <a href="#">Cosmo From Home</a> , <a href="#">New avenues on Functors of Actions</a> , (25' talk)
	2023, <a href="#">NTUA HET</a> , <a href="#">New theories in cosmology and particle physics</a> , (1h Seminar)
	2022, <a href="#">CERN TH DPT Visit</a> , <a href="#">Functors of Actions</a> (5' Blackboard Talk)
	2021, <a href="#">Euclid Science Talk</a> , <a href="#">Overview of impact of interlopers on PNG</a> (1h Talk)
	2020, <a href="#">Atelier D.E.</a> , <a href="#">PNG with interlopers in Euclid</a> , (20' Talk)
	2020, <a href="#">Atelier D.E.</a> , <a href="#">Perturbation Theory of LSS</a> , code: <a href="#">CLASS-PT</a> , (20' Talk)
	2020, <a href="#">SEMFE</a> , <a href="#">NTUA</a> , <a href="#">LSS: Theory and Observations</a> , (40' Seminar)
	2019, <a href="#">30th SYMPOSIUM</a> , <a href="#">Fractality from Multiple Tracers</a> , (15' Talk)
	2019, <a href="#">Euclid IAS Paris</a> , <a href="#">Systematics on PNG</a> , (20' Talk)
	2019, <a href="#">Euclid Consortium Helnsinki</a> , <a href="#">Primordial Non-Gaussianity</a> , (15' Talk)
	2019, <a href="#">eBOSS/DESI France</a> , <a href="#">Cosmology with Cosmic Homogeneity</a> (15' Talk)
	2018, <a href="#">Euclid GC-WL</a> , <a href="#">Ameliorating cosmology with homogeneity</a> , (15' Talk)
	2018, <a href="#">Colloquium of D.E.</a> , <a href="#">Cosmic Homogeneity as a standard ruler</a> , (20' Talk)
	2018, <a href="#">R. Moriond</a> , <a href="#">Euclid:Homogeneity in search of the Dark Sector</a> , (Poster)
	2017, <a href="#">P.O.N.T. in Cosmology</a> , <a href="#">Is the universe homogeneous?</a> , (20' Talk)
	2016, <a href="#">R. Moriond</a> , <a href="#">The homogeneity scale of the universe</a> , (15' Talk)
	2015, <a href="#">UnivEarthS School</a> , <a href="#">Santorini</a> , <a href="#">LSS and homogeneity</a> , (Poster)
	2015, <a href="#">Advance School of Cosmology at I.C.T.P.</a> , <a href="#">Trieste</a>
	2015, <a href="#">Rencontres de Jeunes Physicienne</a> , <a href="#">Homogeneity (Video)</a> , (15' Talk)
	2015, <a href="#">IDPASC school</a> , at <a href="#">LPNHE</a> , <a href="#">Paris</a>
	2014, <a href="#">Elbereth Conference</a> , <a href="#">IAP</a> , <a href="#">The homogeneity of the universe</a> (15' Talk)
	2014, <a href="#">UnivEarthS School</a> , <a href="#">The homogeneity of the universe</a> , (3' Talk)
Certificates	IB Mathematics: Applications and Interpretations (Equivalent Teaching Certificate for 1 year Undergraduate Courses)

Outreach	2024	, <a href="#">Utube</a> , <a href="#">Introduction cosmology for everyone</a> (1h talk)
Talks	2023('24)	, <a href="#">IBS of Provence</a> , Neuroscience and cosmology <a href="#">for high school students</a> (3h)
	2023	, <a href="#">IBS of Provence</a> , Math and physics from CPT <a href="#">for high school students</a> (3h)
	2022	, <a href="#">IBS of Provence</a> , Mathematics and physics <a href="#">for high school students</a> (3h)
Other Interests		creative writing, piano, guitar, running, water sports, skiing

Refs. [Dr. J.C. Hamilton](#)  
[APC](#)  
5 Rue Thomas Mann  
75013, Paris, France  
tel.: 00 33 1 57 27 69 26  
[hamilton@apc.in2p3.fr](mailto:hamilton@apc.in2p3.fr)

[Prof. S. Capozziello](#)  
[SSM Institute](#)  
Largo S. Marcellino, 10,  
80138 Napoli, Naples, Italy  
tel.: 00 39 329 909 4346  
[salvatore.capozziello@na.infn.it](mailto:salvatore.capozziello@na.infn.it)

[Prof. Jackson Levi Said](#)  
[UM-ISSA](#)  
Mathematics and Physics  
University of Malta, Msida  
tel.: +35 62 34 03 035  
[jackson.said@um.edu.mt](mailto:jackson.said@um.edu.mt)

[Prof. S. Katsanevas](#)  
[EGO](#)  
Via Amaldi 56021 Santo Stefano  
a Macerata Cascina (Pisa), Italy  
tel.: 00 39 0 50 75 23 00  
[stavros.katsanevas@ego-gw.it](mailto:stavros.katsanevas@ego-gw.it)

[Prof. S. Camera](#)  
[INFN](#)  
via Pietro Giurra, 1  
Torino, Italy  
tel.: 00 39 1 43 87 44 07  
[stefano.camera@unito.it](mailto:stefano.camera@unito.it)

[Dr. A. Ealet](#)  
[IPNL](#)  
4 Rue Enrico Fermi  
69622 Lyon, France  
tel.: 00 33 6 42 25 44 00  
[a.ealet@ipnl.in2p3.fr](mailto:a.ealet@ipnl.in2p3.fr)

# List of publication and products

Dr. Pierros Ntelis

August 5, 2025

Via, an h-index: 14 and total citations: 2700 ([Google Scholar 2025](#)), my most important work is represented in the following papers:

## Refereed

- [1] **Ntelis, P.** 2025. Advancing Tensor Theories. Symmetry: Mathematics: Advances in Topology and Algebraic Geometry. [URL](#) (Citations: 1) ★
- [2] **Ntelis, P.** 2025. Advanced manifold-metric pairs. Mathematics. [URL](#) (Citations: 2) ★
- [3] **Ntelis, P.** & J. L. Said, 2025. Analytical  $poly\Lambda$ CDM dynamics. PDU. [URL](#) (Citations: 0) ★
- [4] E.D. Valentino, J. L. Said, ..., **Ntelis, P.** ..., et al. 2025. The CosmoVerse White Paper: Addressing observational tensions in cosmology with systematics and fundamental physics. Contribution: Writing on extended theories of gravity, scientific review, and suggestions. PDU [URL](#) (Citations: 52)
- [5] **Ntelis, P.** & J. L. Said 2025. Exploring  $\phi$ CDM model dynamics. EPJC, arXiv:2502.03486 [URL](#), (Citations: 1)
- [6] **Ntelis, P.** & J. L. Said 2025. Simple  $\phi\Lambda$ CDM dynamics. IJGMMP, [URL](#), (Citations: 0)
- [7] Euclid Collaboration, and 1137 colleagues 2024. Euclid. I. Overview of the Euclid mission. A&A, arXiv:2405.13491 [URL](#), (Citations: 144) Contribution: Scientific review
- [8] **Ntelis, P.** & Morris, A. 2023. Functors of actions. Foundations of Physics, arXiv:2010.06707 [URL](#), (Citations: 13) ★
- [9] Göksel Karaçaylı, N., ... **Ntelis, P.** , and 10 colleagues 2022. Optimal 1D Ly $\alpha$  Forest Power Spectrum Estimation – II. KODIAQ, SQUAD & XQ-100. MNRAS [URL](#), (Citations: 30), Contribution: Scientific review and contribution on discussions for further research and software development.
- [10] Hamaus, N., ... **Ntelis, P.** , and 128 colleagues 2022. Euclid: Forecasts from redshift-space distortions and the Alcock-Paczynski test with cosmic voids. A&A arXiv e-prints [URL](#), (Citations: 46), Contribution: Scientific review and contribution on discussions for further research and software development.
- [11] Ilić, S., ... **Ntelis, P.** , and 207 colleagues 2021. *Euclid* preparation: XV. Forecasting cosmological constraints for the *Euclid* and CMB joint analysis. A&A arXiv e-prints [URL](#), (Citations: 34), Contribution: Scientific review and contribution on discussions for further research. ★
- [12] Alam, S., ... **Ntelis, P.** , and 33 colleagues 2020. Towards testing the theory of gravity with DESI: summary statistics, model predictions and future simulation requirements. JCAP [URL](#), (Citations: 55), Contribution: Scientific review and contribution on discussions for further research and software development. ★
- [13] Tutusaus, I., ... **Ntelis, P.** , and 89 colleagues 2020. Euclid: The importance of galaxy clustering and weak lensing cross-correlations within the photometric Euclid survey. Astronomy and Astrophysics 643, [URL](#), (Citations: 48), Contribution: Scientific review and contribution on discussions for further research.
- [14] **Ntelis, P.** , A. Ealet, S. Escoffier, J.-C. Hamilton, A. J. Hawken, J.-M. Le Goff, J. Rich, and A. Tilquin 2018. The scale of cosmic homogeneity as a standard ruler. Journal of Cosmology and Astroparticle Physics 2018, [URL](#), (Citations: 17)

- [15] Blanton, M. R., ... **Ntelis, P.** , and 361 colleagues 2017. Sloan Digital Sky Survey IV: Mapping the Milky Way, Nearby Galaxies, and the Distant Universe. The Astronomical Journal 154, [URL](#), (Citations: 1667), Contribution: Scientific review and contribution on discussions for further research. ★
- [16] **Ntelis, P.** , and 22 colleagues 2017. Exploring cosmic homogeneity with the BOSS DR12 galaxy sample. Journal of Cosmology and Astroparticle Physics 2017, [URL](#), (Citations: 90) ★
- [17] Laurent, P., ... **Ntelis, P.** , and 17 colleagues 2016. A  $14 h^{-3} \text{ Gpc}^3$  study of cosmic homogeneity using BOSS DR12 quasar sample. Journal of Cosmology and Astroparticle Physics 2016, [URL](#), (Citations: 71), Contribution: Scientific review and contribution on discussions for further research and software development.

## Under review

- [1] S.Casas, ..., **Ntelis, P.** , and 128 colleagues 2023. Euclid: Constraints on f(R) cosmologies from the spectroscopic and photometric primary probes. Submitted in A&A, [URL](#) (Citations: 20) Contribution: Scientific review, software development.
- [2] **Ntelis, P.** 2022. A  $(D_\tau, D_x)$ -manifold with  $N$ -correlators of  $N_t$ -objects. arXiv:2209.07472 [URL](#)
- [3] **Ntelis, P.** , et al. 2019. Cosmological constraints from cosmic homogeneity. (Citations: 4) [URL](#)
- [4] **Ntelis, P.** 2025. A probabilistic and expanding Universe. [URL](#), (Citations: 2)
- [5] **Ntelis, P.** 2023. Advancing category and tensor theories. [URL](#), (Citations: 2)
- [6] **Ntelis, P.** 2025. CosmoFATs. [URL](#), (Citations: 2)
- [7] **Ntelis, P.** 2025. A cosmic Schiff's conjecture test. [URL](#), (Citations: 0)
- [8] **Ntelis, P.** 2025. A universal foundational theory. [URL](#), (Citations: 0)

Conferences	2025, <a href="#">The Dark Side of the Universe</a> , <a href="#">FAT dynamics to cosmology</a> (25' Talk)
Talks/Posters	2025, <a href="#">Cosmo From Home</a> , <a href="#">Advanced math in cosmology</a> (Talk)
	2024, <a href="#">50 yr of Horndeski at PI</a> , A probabilistic expanding universe under FA, (Poster)
	2024, <a href="#">Cosmo From Home</a> , <a href="#">A probabilistic expanding universe under FA</a> , (25 min talk)
	2023, <a href="#">NEB</a> , <a href="#">New avenues of functors of actions theories</a> , (Talk 20')
	2023, <a href="#">Cosmo From Home</a> , <a href="#">New avenues on Functors of Actions</a> , (25 min talk)
	2023, <a href="#">NTUA HET</a> , New theories in cosmology and particle physics, (1h Seminar)
	2022, <a href="#">CERN TH DPT Visit</a> , Functors of Actions (5' Blackboard Talk)
	2021, <a href="#">Euclid Science Talk</a> , Overview of impact of interlopers on PNG (1h Talk)
	2020, <a href="#">Atelier D.E.</a> , <a href="#">PNG with interlopers in Euclid</a> , (20' Talk) HVT
	2020, <a href="#">Atelier D.E.</a> , <a href="#">Perturbation Theory of LSS</a> , code: <a href="#">CLASS-PT</a> , (20' Talk)
	2020, <a href="#">SEMFE</a> , <a href="#">NTUA</a> , LSS: Theory and Observations, (40' Seminar)
	2019, <a href="#">30th SYMPOSIUM</a> , <a href="#">Fractality from Multiple Tracers</a> , (15' Talk)
	2019, <a href="#">Euclid IAS Paris</a> , Systematics on PNG, (20' Talk)
	2019, <a href="#">Euclid Consortium Helsinki</a> , Primordial Non-Gaussianity, (15' Talk)
	2019, <a href="#">eBOSS/DESI France</a> , Cosmology with Cosmic Homogeneity (15' Talk)
	2019, <a href="#">Aix-University</a> , <a href="#">Homogeneity with Multitracers</a> , (2h Seminar)
	2019, <a href="#">Aix-University</a> , A note on lss, <a href="#">Summer School</a> , (6h Seminar)
	2018, <a href="#">Euclid GC-WL</a> , <a href="#">Ameliorating cosmology with homogeneity</a> , (15' Talk)
	2018, <a href="#">Colloquium of D.E.</a> , <a href="#">Cosmic Homogeneity as a standard ruler</a> , (20' Talk)
	2018, <a href="#">R. Moriond</a> , <a href="#">Euclid:Homogeneity in search of the Dark Sector</a> , (Poster) HIC
	2018, <a href="#">UiO</a> , <a href="#">What can fractality tell us about the universe?</a> , (1h seminar)
	2017, <a href="#">P.O.N.T. in Cosmology</a> , <a href="#">Is the universe homogeneous?</a> , (20' Talk)
	2016, <a href="#">R. Moriond</a> , <a href="#">The homogeneity scale of the universe</a> , (15' Talk)
	2015, <a href="#">UnivEarthS School</a> , Santorini, <a href="#">LSS and homogeneity</a> , (Poster)
	2015, <a href="#">Rencontres de Jeunes Physicienne</a> , <a href="#">Homogeneity (Video)</a> , (15' Talk)
	2014, <a href="#">Elbereth Conference</a> , <a href="#">IAP</a> , <a href="#">The homogeneity of the universe</a> (15' Talk)
	2014, <a href="#">UnivEarthS School</a> , <a href="#">The homogeneity of the universe</a> , (3' Talk)



Outreach	2025	, <a href="#">Utube</a> , Advanced Euler's identity (3')
	2025	, <a href="#">Utube</a> , Analytical <i>poly</i> $\Lambda$ CDM dynamics 101 (5' talk)
	2025	, <a href="#">Utube</a> , Advancing Tensor Theories 101 (10' talk)
	2025	, <a href="#">Utube</a> , Quintessence 101 (5' talk)
	2024	, <a href="#">Utube</a> , Introduction cosmology for everyone (1h talk)
	2023('24)	, <a href="#">IBS of Provence</a> , Neuroscience and cosmology for high school students (3h)
	2023	, <a href="#">IBS of Provence</a> , Math and physics from CPT for high school students (3h)
	2022	, <a href="#">IBS of Provence</a> , Mathematics and physics for high school students (3h)

## Software

- [1] P.Ntelis (2017-today): [Github contributions](#)
- [2] P.Ntelis (2017-today): [COSMOPIT](#)
- [3] P.Ntelis (2018-2021): [Gitlab private Euclid softwares](#)
- [4] P.Ntelis (2018): [MCMC-posterior-example](#)
- [5] P.Ntelis (2018): [CoHo](#)
- [6] P.Ntelis (2018): [ANALYSE-SN-magnitude-redshift-curve](#)
- [7] P.Ntelis (2018): [Extract-Cosmology-with-the-BAO-peak-position](#)
- [8] P.Ntelis (2020): [AofEFT](#)
- [9] P.Ntelis (2023): [Tutorial on particle/galaxy simulations and coordinate transformation](#)
- [10] P.Ntelis (2025a): [Standard  \$\phi\$ CDM dynamics](#)
- [11] P.Ntelis (2025b): [Simple quintessence dynamics](#)
- [12] P.Ntelis (2025c): [Analytical \*poly\* \$\Lambda\$ CDM dynamics](#)