

FUNDING APPLICATION
Section C – CV Template

C.1 CURRICULUM VITAE

Personal information

Name, Surname:	Lucia Aurelia Popa		
Date of birth:	17/04/1957	Sex:	F
Nationality:	Romanian		
Researcher unique identifier(s) (ORCID, Researcher ID etc.):	https://orcid.org/0000-0001-9045-9154		
URL for personal website (if case):	http://www.spacescience.ro/~lpopa/		

Education

Year	Faculty/department - University/institution - Country
1990 (dissertation defended)	Ph.D. in Physics, University of Bucharest, Romania
1983	Master in Physics, University of Bucharest, Romania

Positions - current and previous

(Academic sector/research institutes/industrial sector/public sector/other)

Year	Job title – Employer - Country
2001-	Senior Researcher I, Institute of Space Science subsidiary INFLPR, Bucharest, Romania
2002-2006	Associate researcher, National Institute for Astrophysics / Institute for Space Astrophysics (INAF/IASF), Bologna, Italy (European Space Agency - training contract)
1999-2001	Senior Researcher II, Institute of Space Science subsidiary INFLPR, Bucharest, Romania
1990-1998	Senior Researcher III, Institute of Space Science subsidiary INFLPR, Bucharest, Romania
1983-1989	Research Assistant, IFIN-HH, Bucharest, Romania

Career breaks (if case)

Year	Reason
yyyy-yyyy	

Project management experience

(Academic sector/research institutes/industrial sector/public sector/other. Please list the most relevant.)

Year	Project title - Role – Funder – Budget – link to project webpage
2019-	Science Data Centre for Euclid Mission (SDC-Ro) – Director – ESA/Prodex- 1 200 000 EUR.
2015-2019	Romanian Contribution to the Ground Segment of the Euclid Mission (Ro-EGS) –Director - ESA/Prodex- 350 000 EUR.

2013-2015	Leon3 based On-Board Instrument Software (L3-OBIS) – Director- ESA/Romanian Incentive Scheme- 172 500 EUR.
2013-2016	Testing the primordial gravitational waves with CMB measurements – Director- UEFISCDI /PCE/IDEA- 160 000 EUR
2008-2012	Contributions to the assessment study of the Euclid Mission (CEM) – Director- Romanian Space Agency/STAR – 150 000 EUR.
2008-2011	Dark Neutrinos in Observational Cosmology – Director-CNCSIS/PCE/IDEA- 160 000 EUR
1998-2002	Scientific exploitation of Planck-LFI data (Planck LFI-SED) – Director –ESA/PECS – 850 000 EUR.
1995-1998	The Cosmic Microwave Background Radiation: Measurement and interpretation – Associate Coordinator – European Commission – 150 000 EUR.

Other relevant professional experiences

(e.g. institutional responsibilities, organisation of scientific meetings, membership in academic societies, review boards, advisory boards, committees and major research or innovation collaborations, other commissions of trust in public or private sector)

Year	Description - Role
2020-	Member of MoEDAL Collaboration at LHC/CERN
2012-	Member of ESA/Euclid mission Consortium Board (ECB)
2009-	Member of ESA/Euclid mission Consortium (EC)
2011-2023	Member of ESA Observing Time Allocation Committee for Cosmology, Extragalactic Deep Fields and Area Surveys
2006-2018	Member of the Core Team of ESA/Planck mission and Planck Scientist
1994-2017	Leader of Cosmology and Astroparticle Physics Laboratory at Institute of Space Science, Bucharest, Romania
1993-2017	Member of the Scientific Council of Institute of Space Science
1994-1998	Vice-president of the Scientific Council of INFLPR

C.2 Track record of the last 10 years

A list of the ten most important scientific outputs (publications, patents, technologies etc).

- 1. Popa, L. A.**, Search for Dark Higgs Inflation with Curvature Corrections at LHC Experiments, Universe, Volume 8, Issue 4 (2022).
- 2. Charya, B, ... Popa L.A.** et al. (MoEDAL Coll.), Search for magnetic monopoles produced via the Schwinger mechanism, NATURE 602, 63 (2022).
- 3. Ilic, S., ... Popa L. A.**, et al. (Euclid Collaboration), Euclid preparation. XV. Forecasting cosmological constraints for the Euclid and CMB joint analysis, Astronomy & Astrophysics, Volume 657, A91, (2022)
- 4. Popa, L. A.**, Dark Matter Sterile Neutrino from Scalar Decays, Universe, Volume7, Issue 8 (2021)
- 5. Martinelli, M., ... Popa, L. A.**, et al. (Euclid Collaboration), Euclid: Forecast constraints on the cosmic distance duality relation with complementary external probes, Astronomy & Astrophysics, Volume 644, A80, (2020)
- 6. Ade, P.A.R., ... Popa, L.A.**, et al. (Planck Collaboration), Planck intermediate results. XXIV. Constraints on variations in fundamental constants, Astronomy & Astrophysics, Volume 580, A22, (2015)

7. Ade, P.A.R., ...**Popa, L.A.**, et al. (Planck Collaboration), Planck 2015 results. XVI. Isotropy and statistics of the CMB, *Astronomy & Astrophysics*, Volume 594, A16, (2016)
8. Ade, P.A.R., ...**Popa, L.A.**, et al. (Planck Collaboration), Planck 2015 results. XIII. Cosmological parameters, *Astronomy & Astrophysics*, Volume 594, A13, (2016)
9. Ade, P.A.R., ...**Popa, L.A.**, et al. (Planck Collaboration), Planck 2015 results. XIV. Dark energy and modified gravity, *Astronomy & Astrophysics*, Volume 594, A14, (2016)
10. **Popa, L. A.**, Tonoiu, D., Subdominant Dark Matter sterile neutrino resonant production in the light of PLANCK, *Journal of Cosmology and Astroparticle Physics*, Volume 2015, Issue 09, (2015)

Scientometric results (according to WoS):

Total number of publications: 137 (28 as first author)

Times Cited Without self-citations: 29,867

H-index: 59

C.3 Narrative CV

A narrative summarizing which work has had the greatest importance and impact.

-1983: I started my research activity in the field of high energy particle physics obtaining interesting results related to the physics of multi-quark states [1].

-1995: I joined the Astrophysics and Cosmology community by participation, as associate coordinator, to the EC network *The Cosmic Microwave Background (CMB): Measurement and Interpretation*, starting a fruitful collaboration with the main universities and research institutes in the field. The network was aimed to contribute to the scientific analysis of the CMB measurements obtained by the NASA/Cosmic Background Explorer (COBE) satellite and to prepare a proposal to European Space Agency (ESA) for a new CMB space mission, the Planck mission, that has been approved in 1997.

The main results obtained during this period were related to the cosmic far infrared background properties, the correlation signature of the diffuse light in COBE/FIRAS data and the characterization of the non-gaussian effects in COBE/DMR temperature anisotropy maps [2].

-1996: I joined the Sky Polarization Observatory (SPORT) project, dedicated to the study of CMB polarization and of the diffuse galactic backgrounds on board the International Space Station (ISS). The main contributions to the SPORT project were related to the optimization of the mission design with emphasis on the performances imposed by the ISS environment.

-1997: I joined the Planck Collaboration. Planck satellite is a multi-frequency high resolution CMB experiment that imaged the CMB sky since August 2009 to September 2014. In the pre-launch period, my main contributions to the Planck mission were related to the definition of the Scientific Program and the development of dedicated software for the Planck data reduction.

The main scientific results are related to: cosmological implications of massive neutrinos, impact of cosmological neutrino background for reionization, possibility to detect Dark Matter with the Planck gravitational weak lensing measurements, possibility to complement the Planck measurements with other cosmological data: NASA/Wilkinson Anisotropy Probe (WMAP) CMB data, ground based CMB measurements, galaxy distributions from SDSS, 2dF-GRS and supernovae remnants.

The main results are related to: determination of cosmological parameters, constraints on the lepton asymmetry and the radiation energy density, reconstruction of the inflation potential, constraints on Higgs inflation [3].

Other scientific results were obtained in collaboration with Planck Consortium: detection of PLCK G266.6-27.3, a X-ray massive galaxy cluster, determination of the CMB power spectra anisotropy, detection of the CMB weak lensing, characterization of the anisotropies and statistics of the CMB field, determination of

cosmological parameters, study of background geometry and topology of the Universe, search for cosmic strings and other topological defects, constraints on primordial non-Gaussianity, constraints on inflation, constraints on variation in fundamental constants, study of Dark Energy and Modified Gravity [4].

- **2011:** I participate to the assessment study of Euclid mission, approved by ESA in 2011 for the Cosmic Vision Program (2015-2025). The Euclid mission has been launched in July 2023. We expect the first Data Release (DR1) in February 2025. During the preparatory phase, as member of Euclid Consortium (EC), I participate to the elaboration of Euclid scientific program that defines the standard and key projects and I contributed to the related publications [5].

At Institute of Space Science, I coordinate the implementation of the Science Data Centre for Euclid mission and development, validation and tests of the photometric visibility mask (VMPZ-ID) processing function that provides accurate estimates of photometric depth and selection function of the Euclid surveys.

In 2020 I received the honorific title of Builder of Euclid mission as recognition for my contribution to the scientific programme of the mission.

-**2020:** I joined the MoEDAL Collaboration at LHC/CERN, aiming to explore the expected sensitivity of the Forward Physics Facility (FPF) experiments to the cosmological measurements [6].

References:

[1] Besliu, C, **Popa, L.A.**, Popa, V., Study of Non-Strange Dibaryonic Mass Spectra in n-p Reaction at 5.1 GeV/c, Journal of Physics G, Vol. 18, 807 (1992).

Besliu, C; **Popa, L.A.**, Popa, V., Search for Dibaryonic De-excitations in Relativistic Nuclear reactions, Journal of Physics G, Vol. 19, 1831 (1993).

[2] **Popa, L.A.**, Burigana, C, Correlation properties of the diffuse light from COBE-FIRAS maps, Astronomy and Astrophysics, Vol. 334, 420 (1998).

Popa, L.A., Power fluctuations in the wavelet space: large-scale CMB non-gaussian statistics, New Astronomy, Vol. 3, 563 (1998).

[3] **Popa, L.A.**, Burigana, C., Finelli, F., Mandolesi, N., On the detection of neutrino oscillations with Planck surveyor, Astronomy and Astrophysics, Vol. 363, 825 (2000).

Popa, L. A., Burigana, C., Mandolesi, N., Cosmological Parameter Determination from Planck and Sloan Digital Sky Survey Data in Λ Cold+Hot Dark Matter Cosmologies, The Astrophysical Jour. 558, 10 (2001).

Popa, L. A., Burigana, C., Mandolesi, N., Dynamical Effects of the Neutrino Gravitational Clustering at Planck Angular Scales, The Astrophysical Journal, Vol.580, 16 (2002).

Popa, L.A., Burigana, C., Mandolesi, N., Signature of HDM clustering at Planck angular scales, Journal of High Energy Physics, Volume 32, 321 (2003).

Popa, L. A., Vasile, A., Constraints on non-thermal dark matter from PLANCK lensing extraction, Journal of Cosmology and Astroparticle Physics, 10, 017 (2007).

Popa, L. A., Vasile, A., WMAP five-year constraints on lepton asymmetry and radiation energy density, Journal of Cosmology and Astroparticle Physics 06, 028 (2008).

Burigana, C., **Popa, L. A.**, Salvaterra, R., Schneider, R., Choudhury, T. R., Ferrara, A., Cosmic microwave background polarization constraints on radiative feedback, Monthly Notices of the Royal Astronomical Society, Vol. 385, 404 (2008).

Popa, L. A., Mandolesi, N., Caramete, A., Burigana, C., From WMAP to Planck: Exact Reconstruction of Inflationary Potential from High-precision Cosmic Microwave Background Measurements, The Astrophysical Journal, Vol. 706, 1008 (2009).

Popa, L.A., Observational consequences of the standard model Higgs inflation variants, Journal of Cosmology and Astroparticle Physics, 10, 025 (2011).

Caramete, A., **Popa, L. A.**, Cosmological evidence for leptonic asymmetry after Planck, Journal of Cosmology and Astroparticle Physics, 2, 012 (2014).

Popa, L.A., Tonoiu, D., Subdominant Dark Matter sterile neutrino resonant production in the light of Planck, Journal of Cosmology and Astroparticle Physics, 9, 066 (2015).

[4] <https://www.cosmos.esa.int/web/planck/publications>

[5] <https://www.euclid-ec.org/science/publications/>

[6] **Popa, L. A.**, Search for Dark Higgs Inflation with Curvature Corrections at LHC Experiments, Universe, Vol. 8, Issue 4 (2022).

Charya, B, ... **Popa L.A.** et al. (MoEDAL Coll.), Search for magnetic monopoles produced via the Schwinger mechanism, NATURE 602, 63 (2022).

Acharya B, ..., **Popa, L. A.** et al. (MoEDAL Coll.), Search for highly-ionizing particles in pp collisions at LHC's Run 1 using the prototype of the MoEDAL detector, Europhys. J. C, 82, 694 (2022).

Note: For each nominated person, please present the CV (uploaded as a single document of maximum 6 pages, saved with the name of the member, A4 format, Times New Roman font, 11-point font size, 1.15 line spacing and 2 cm margins).