

The Project leader: *Popescu Marcel*

1. Curriculum Vitae of the project leader

PERSONAL INFORMATION: Address: Str. Voila, nr. 2, bl. 22, sc. 4, ap. 56, Bucuresti, postal code: 041943; Date and place of birth: June 07, 1983, Horezu, Romania; E-mail: mpopescu@iac.es mpopescu@aira.astro.ro, popescu.marcel1983@gmail.com; Mobile: +40748129920
BrainMap ID: U-1700-031G-6584; <https://www.brainmap.ro/public-profile-82821817>

EDUCATION, DEGREES AND DIPLOMAS:

2007 - 2012, **Doctoral studies in Astronomy and Astrophysics**; Thesis Title: "Techniques for asteroid spectroscopy"; Joint coordination: 1) Politehnica University of Bucharest, Faculty of Applied Sciences, Department of Physics; 2) École Doctorale d'Astronomie et d'Astrophysique de l'Île-De-France, Observatoire de Paris.

2002 - 2007, **Engineer diploma – Radio and Optical Communications**; Politehnica University of Bucharest, Faculty of Electronics and Telecommunications.

CAREER:

1) Instituto de Astrofísica de Canarias (IAC), **postdoctoral researcher**, 01/2018 – now. Project: Science with OSIRIS-Rex.

2) Member of the team as **postdoctoral researcher** (employed to work on this project by LESIA/Paris Observatory): "NEOShield-2: Science and Technology for Near-Earth Object Impact Prevention" funded by the EU European Commission Research and Innovation programme Horizon 2020. Duration: temporary contracts totaling 8 months over October 31 – December 2017.

3) Astronomical Institute of the Romanian Academy, **scientific researcher III**. Intermediary steps: 10/2012 – 10/2013: research assistant, 11/2013 – 10/2014: scientific researcher, 11/2014 – 12/2017: scientific researcher III. I was the group leader for "Asteroid Spectra" in the framework of the project "Compositional and dynamical modeling of near-Earth asteroids" (financed by Romanian Space Agency in the frame of Space Technology and Advanced Research - Programme for Research, Development and Innovation 2012)

4) Observatoire de Paris – IMCCE, **junior researcher**, scholarship from European Space Agency, 10/2010 – 04/2011.

5) Private sector: **senior electronic engineer**, SC. Infineon Technologies Romania CO&SCS, Product Engineer, 05/2011 - 03/2016 (with several interruptions); embedded software engineer, ExaqtWorld Romania, 07/2009 – 09/2010; system design engineer, Atmel/Mosys Romania S.R.L, 08/2006 – 02/2009.

REFEREE for scientific journals: Science (1), Monthly Notices of the Royal Astronomical Society (2), Icarus(1), Advances in Space Science(1); Reviewer for Time Allocation Committee of Opticon network

Co-ADVISOR OF BACHELOR/MASTER PROJECTS for five students in the domain of astronomy and electronics. The most recent - Jad Alexandru Mansour - "Spectrophotometric classification of basaltic asteroids in the Main Belt"(2018), and Simion Nicolae Gabriel - "Statistica corpurilor mici din Sistemul Solar (Statistics for the small bodies of the Solar System)" (2019)

TUTOR and teaching at ERASMUS+/OPTICON Summer School 2019: Observational Astrophysics (<https://opticon-schools.nbi.ku.dk/other-schools/from-proposals-to-publication/>)

TELESCOPE OBSERVATIONAL EXPERIENCE: ESO - New Technology Telescope (La Silla Observatory, Chile) - 3.58m. NASA Infrared Telescope Facility (IRTF) - 3m, Mauna Kea, Hawaii. William Herschel Telescope - 4.2m and Isaac Newton Telescope (INT) – 2.5m, Roque de Los

Muchachos Observatory (ORM) in La Palma (Canary Islands/Spain). Since 2015, I am constantly observing (2 nights/month on average) with telescopes with the aperture in the range of 0.35 – 1.5 m (including Telescopio Carlos Sánchez – 1.52m, Teide Observatory). I was the **P.I. of six observational programs** performed with IRTF, WHT, and INT telescopes.

OTHER AFFILIATIONS: 1) Member of Romanian National Committee for Astronomy; 2) Associated researcher, Institut de Mecanique Celeste et de Calcul des Ephemerides (IMCCE), 06/2014 – 06/2018; 3) Vice-president, Astroclubul Bucuresti, 03/2014-03/2016.

RECOGNITIONS, AWARDS: Asteroid (22281) Popescu - The asteroid (22281) 1985 PC discovered in 1985 Aug. 14 by E. Bowell was named Popescu as a recognition for my contributions in the field of asteroid spectroscopy (<http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=Popescu>)

2. Defining elements of the outstanding scientific achievements of the project leader

1. **Articles:** I am **first author for 7 articles** published in journals with impact factor greater than 5. I am **co-author for another 28 articles** published in journals with impact factor greater than 1.5. For 11 of these articles I had a major contribution (I am the second, or the third co-author). In summary, among the most relevant five papers are:

Art. 1 Popescu, M.; Licandro, J.; Morate, D.; de León, J.; Nedelcu, D. A.; Rebolo, R.; McMahon, R. G.; Gonzalez-Solares, E.; Irwin, M.; "Near-infrared colors of minor planets recovered from VISTA-VHS survey (MOVIS)"; *Astronomy & Astrophysics*, Volume 591, id.A115, (06/2016). I.F. 5.565

Art. 2 Popescu, M.; Birlan, M.; Nedelcu, D. A.; „Modeling of asteroid spectra - M4AST”; *Astronomy & Astrophysics*, Volume 544, id.A130, (08/2012). I.F. 5.565

Art. 3 Popescu, M.; Birlan, M.; Nedelcu, D. A.; Vaubaillon, J.; Cristescu, C. P.; „Spectral properties of the largest asteroids associated with Taurid Complex”; *Astronomy & Astrophysics*, Volume 572, id.A106, (12/2014). I.F. 5.565

Art. 4 Popescu, M.; Perna, D.; Barucci, M. A.; Fornasier, S.; Doressoundiram, A.; Lantz, C.; Merlin, F.; Belskaya, I. N.; Fulchignoni, M.; "Olivine-rich asteroids in the near-Earth space"; *Monthly Notices of the Royal Astronomical Society*, Volume 477, Issue 2, p.2786-2795, (06/2018). I.F. 5.194

Art. 5 Dellagiustina, D. N.; Emery, J. P.;...**Popescu, M.;**... (58 co-authors and OSIRIS-REx Mission team); "Properties of rubble-pile asteroid (101955) Bennu from OSIRIS-REx imaging and thermal analysis"; *Nature Astronomy*, Volume 3, p. 341-351, (03/2019). My contribution: participating to data analysis, developing methods for interpreting the data. This paper outlines my involvement in the scientific part of the OSIRIS-REx Mission team. I am contributing to the Image Processing Working Group as part of the IAC team.

Overall, to date, my *Publons - Evaluating Academic Research* profile list 64 publications and the *ORCID* (<https://orcid.org/0000-0001-8585-204X>) profile lists 119 publications (this profile include ~50 MPEC circulars which are issued when new observations are reported to Minor Planet Center). I am constantly participating to the major conferences in planetary sciences (each year I am first author of 1-3 abstracts and co-author of 3-7 abstracts to these conferences).

2. Scientific presentations: 1. **Webinar** at Observatório Nacional, Rio de Janeiro, Brazil – November 16, 2017: “Compositional mapping of asteroids population using near-infrared data” 2. **Seminar** at IMCCE – Paris Observatory – April 03, 2017: “Spectral characterization of small NEOs in the framework of NEOSHIELD-2 project” 3. **Seminar** at IMCCE – Paris Observatory – November 07, 2016: “Compositional mapping of asteroids population using near-infrared data” 4. **Seminar** at LESIA/Paris Observatory - March 21, 2016: “Compositional mapping of minor planets population using near-infrared data” 5. **Seminar** at Instituto de Astrofísica de Canarias (IAC) – July 02, 2015: “Near-Infrared colors of minor planets recovered from VISTA - VHS survey”

5. Research projects: 1. **Responsible** for the part belonging to Astronomical Institute: “VESS - Extensive use of know-how for space and security activities” (Valorificarea extensivă a experienței in

activități de spațiu și securitate). This work is financed by Romanian National Authority for Scientific Research – UEFISCDI, project No. PN-III-P1-1.2-PCCDI-2017-0371. The budget I am administrating: 50 000 RON (~10 500 euro). Duration April, 2018 – December 2020. *Significant Results:* Up to now, in the framework of this project we published two articles in A&A, one article is under review in MNRAS (accepted with minor modifications). **2. Principal Investigator:** "CMAPS - Compositional mapping of asteroid population based on spectral and spectro-photometric data". This project was financed by a grant of the Romanian National Authority for Scientific Research and Innovation, CNCS – UEFISCDI, project number PN-II-RU-TE-2014-4-2199. Budget: 549.125,00 RON (~125 000 euro). Duration: October 01, 2015 - September 30, 2017. Project website: <http://observer.astro.ro/cmapps/> The results are summarize on the website. **3. Principal Investigator:** "Spectral and Astrometric studies of near-Earth asteroids", financed by CEI Canarias: Campus Atlántico Tricontinental (Spain) - 08/2014 – 11/2014. Budget: 9000 euro.

3. Significant and representative scientific achievements

My research topics concern the Solar System astronomy with emphasis on the minor bodies - asteroids and comets. Within this topic I am expert into the physical properties of asteroids using spectroscopic, photometric, and astrometric data. I became an active author and co-author of scientific articles in 2011. I have **co-authored a total of 35 articles** (ISI articles with impact factor greater than 1.5) in spectroscopy, astrometry, dynamical and mineralogical modeling of minor bodies. I was the **first author for 7 of these papers**, which were published in the Astronomy & Astrophysics and Monthly Notices of the Royal Astronomical Society journals (Impact Factor > 5).

SCIENTOMETRIC INDICATORS: **HIRSCH INDEX: 8**

Publons: <https://publons.com/researcher/3146370/marcel-popescu/>

Scopus ID: <https://www.scopus.com/authid/detail.uri?authorId=52164449300>

ORCID: <https://orcid.org/0000-0001-8585-204X>,

I am refereeing articles for the major scientific journals: Science, Monthly Notices of the Royal Astronomical Society, Icarus, Advances in Space Science. I was **invited to give talks** and seminars at various research institutes. I was **convener** for the session "SB4 – Planetesimals: primitive and differentiated small bodies, including Vesta and Ceres as seen after the Dawn mission" at European Planetary Science Congress / Division for Planetary Science, on 2019.

I am currently **involved into international planetary science research programs** on the following topics: "Near-infrared colors of minor planets recovered from VISTA-VHS survey (MOVIS)" (**I am leading this program**), "Science with OSIRIS-Rex and Haybusa 2", "Solar System science with ESA Euclid mission" (**I am member** of the Solar System Working Group), "Spectro-photometric characterization of near-Earth asteroids at the Canary Islands Observatories" (**I am co-leading this program**). I am **member** in the Working Group 2 - "Remote Observations", and Working Group 5 - "Data analysis" for the **ESA Hera mission**.

I am **member of the team** in the following projects: ESA-P3NEOI: Observational Support from collaborating observatories (Call ESA ITT no. AO/1-9591/18/D/MRP) - I am contributing to the WP2 and WP4. NEOROCKS: The NEO Rapid Observation, Characterization and Key Simulations (Call Identifier H2020-SPACE-2018-2020 Topic SU-SPACE-23-SEC-2019) - I am contributing to Task 3.5 Observational support to the Arecibo Planetary Radar Program.

I am strongly involved in **developing Romanian astronomical community**: 1) I am training students and young researchers; 2) I am involved in developing the observational infrastructure (e.g. Gherase et al. 2017 RoAj) and I train telescope observers; 3) I am conducting citizen science observational programs for Romanian amateur astronomers (e.g. occultations).