



**Luka Č. Popović**, full member of the Serbian Academy of Nonlinear Sciences since April 12, 2023, was born on April 16, 1964. in the Trnjani (Doboj). He graduated in astronomy in 1988. at the Faculty of Science and Mathematics, University of Belgrade. He defended his master thesis in plasma physics in 1991 at the Faculty of Physics, University of Belgrade, and his doctorate in astrophysical spectroscopy in 1994 at the Faculty of Mathematics, University of Belgrade.

In the period from 1989 to 1992, he was employed at the Popular Observatory and Planetarium AS "R. Bošković". He was director of this institution (in two periods: 1991-1995 and 1999-2003).

Since 1992, he has been employed at the Astronomical Observatory as a research associate, where he is still working as a research professor (elected to the mentioned title in 2001). Since April 2023, he has been acting as the director of the Astronomical Observatory in Belgrade. He is engaged as a full professor at the Faculty of Mathematics of University of Belgrade (since 2021).

He has been engaged (since 1990) in scientific research, the education of young researchers and the popularization of astronomy and science in general.

The scientific field in which he works is astrophysics, covering following fields: spectroscopy of laboratory and stellar plasma, active galactic nuclei, gravitational lenses, gamma rays; and research of the Earth's ionosphere.

Briefly, scientific work can be divided into **a) *Spectroscopy of laboratory and stellar plasma***. Early works (early 1990s) refer to problems related to atomic physics and plasma physics. He improved the calculations of the Stark effect with a modified semiempirical formula for complex emitters. **b) *Spectroscopy of Extragalactic Objects - Active Galactic Nuclei***. He has been engaged in the study of active galactic nuclei (AGN, the usual collective name for quasars, Seyfert galaxies, and blazars) since the beginning of the 1990s, which was then a pioneering work in Serbian astronomy (remember that quasars were discovered in the 1960s of the last century). Working in this area, he develops an original approach for the study of the spectra of active galaxies and gravitational lenses, i.e., the field of extragalactic spectroscopy. In this field, he supervised six PhD students, who successfully completed their PhD theses. Studies performed in this area have covered the physics of the central part of the AGN, from the accretion disk, the broad-line region, the dust torus, the narrow-line region, to the circumstellar population - which surrounds the active nuclei. A special contribution of AGN research is his initiative to observe active galaxies in spectro-polarization, which has so far produced exceptional results, one of which is a new method for estimating the mass of supermassive black holes at the centers of active galaxies using polarization across AGN broad-line profiles (together with V. L. Afanasiev from the Special Astrophysical Observatory). **c) *Gravitational lenses***. He was the first in Serbian astronomy to start studying the effect of gravitational lenses, and he is one of the pioneers of studying the influence of gravitational lenses on the shapes of spectral lines in the world, especially the iron line at an energy of 6.4 keV, which is visible in active galaxies, and which is emitted from the accretion disk that is located very close to the central black hole. In this field, the candidate supervised one doctoral student, and was invited to the commissions for the defense of a doctorate in this field abroad (University of Heidelberg, Germany, and University of La Laguna, Canary Islands, Spain). **d) *Gamma ray bursts and the Earth's ionosphere***. He studies gamma ray bursts, and lately he has been engaged in researching the influence of radiation from space on the ionosphere. In this area, together with a doctoral student, a model of shock wave model for gamma

ray burst origin was developed. Also, this theoretical research was applied to the observation of the influence of gamma ray bursts (recorded on the Swift satellite) on the ionosphere (signal observed in Belgrade).

He published over 500 scientific and professional papers (data from the ADS database - NASA Astrophysics Data System (search including astronomy and physics), of which over 160 were published in leading journals in astronomy and physics. He has been cited more than 4000 times (source ADS) and has a Hirsch factor of 33.

He was a visiting professor at the University of Padua (2008), the University of Tor Vergata in Rome (2011) and the University of Göttingen (2013 and 2014). He actively participated in the realization of the first Erasmus Mundus program (Astromundus) at the University of Belgrade. Under his (co)supervision, nine PhD theses and a large number of master's theses were defended.

He spent longer study stays in Spain (Institute for Astrophysics, Canary Islands), Germany (Astrophysical Institute in Potsdam and Max-Planck Institute for Radio Astronomy in Bonn), and Russia (Institute for Astronomy of the Russian Academy of Sciences).

From 2001 to 2020, he led a scientific project called Astrophysical Spectroscopy of Extragalactic Objects, funded by the Ministry of Science in Serbia. In addition, he was the coordinator of several international projects.

He was granted the prestigious Humboldt scholarship (2003-2005) and a scholarship for visiting professors, which is awarded at the initiative of the President of the Chinese Academy of Sciences (2020/21). He was granted a year award for scientific work at the Astronomical Observatory. He acts as a member of the Scientific Committees of a number of international conferences in astrophysics and physics, he acted as editor of special journal issues, and participates in a number of committees which organize the scientific work in Serbia, see more details at: <http://ipopovic.aob.rs/>

#### **A List of 5 Selected Research Publications:**

1. Popović, L. Č., Afanasiev, V. L., Shablovinskaya, E. S., Ardilanov, V. I., Savić, Dj. 2021, *Spectroscopy and polarimetry of the gravitationally lensed quasar Q0957+561*, Astronomy & Astrophysics, Volume 647, id.A98, 11 pp
2. Popović, L. Č., Simić, S., Kovačević, A., Ilić, D. 2021, *Detecting subparsec supermassive binary black holes: Long-term monitoring perspective*, Monthly Notices of the Royal Astronomical Society, Volume 505, Issue 4, pp.5192-5211
3. Popović, L. Č. 2020, *Broad spectral lines in AGNs and supermassive black hole mass measurements*, Open Astronomy, Volume 29, Issue 1, pp.1-14
4. Popović, L. Č. 2012, *Super-massive binary black holes and emission lines in active galactic nuclei*, New Astronomy Reviews, Volume 56, Issue 2, p. 74-91
5. Popović L. Č., 2003, *Balmer Lines as Diagnostics of Physical Conditions in Active Galactic Nuclei Broad Emission Line Regions*, Astrophys. J, 599, 140-146.