



Opinion

By Jordanka Semkova, DSc, Professor at SRTI-BAS

For a competition for a professor at the Space Research and Technology Institute (SRTI-BAS) in higher education field 4. Natural sciences, mathematics and informatics, professional field 4.4. Earth Sciences, speciality "Remote sensing of Earth and planets (Studies of the Processes in the Middle and Higher Earth Atmosphere)" for the needs of the Atmospheric Optical Research Section, Stara Zagora Branch, published in the State Gazette, issue 98 of 12/13/2019

For participation in the competition one candidate has applied – Ass. Prof., Dr. Veneta Guineva from SRTI-BAS.

Data for the candidate

Assoc. Prof. Dr. Veneta Hristova Gineva completed her higher education in 1980 as a Master of Science in Physics at Sofia University "St. Kliment Ohridski", speciality "Radiophysics and Electronics", specialization "Plasma Physics". From 1983 to the present time she has worked as a physicist, research associate and associate professor at Central Laboratory for Space Research –BAS (CLSR-BAS), Institute for Solar-Terrestrial Physics (STIL-BAS), Institute for Space Research and Solar-Terrestrial Physics-BAS and SRTI-BAS. In 2010 Veneta Guineva received her PhD degree in the speciality "Physics on the atmosphere, ocean and near-Earth space" given by the Higher Attestation Commission in Bulgaria. Her PhD thesis is "CO+ in Halley comet spectrum by data of the three-channel spectrometer onboard VEGA-2". Since 2010 Dr. Veneta Guineva has served as a senior researcher II degree and assistant professor at SRTI-BAS, Stara Zagora branch.

Scientific activities

The full list of the scientific publications, presented by the candidate includes: **publications in journals with IF and/or SJR – 33; publications in referred and/or indexed journals without IF – 14; publications in non - referred journals with scientific referring – 123; conference papers and posters- 292.** The summary IF of her 33 publications is **28.371**, the summary SJR for 31 publications is **14.037** (based on the candidate's data).

For the participation in the competition for Professor the candidate presents for referring 76 works, which were not used in her PhD thesis or in the Competition for the Senior Researcher II degree.

According the Decree of the Council of Ministers N 26 of February 13, 2019 on ammendment and supplement to the Rules for the Implementation of the Law on Development of the Academic Staff in the Republic of Bulgaria these publications are classified as follow indices: **Scientific publications in journals, which are referred and indexed in world renowned scientific data bases –22; publications in journals with**

IF and/or SJR – 13; publications in referred and/or indexed journals without IF – 9; publications in non - referred journals with scientific referring - 54. The summary IF of her 13 publications is 12.517, the summary SJR for 11 publications is 6.152 (based on the candidate's data).

A complete list of the noted **75 citations**, 71 in foreign and 4 in Bulgarian editions is presented. **47 of the citations are in 32 journals with a total impact factor of 105.748, 44 of the citations are in journals that have total SGR 51.165.**

These facts are indicative of the essential importance of the research of Assoc. Prof. Dr. Veneta Gineva.

The scientific publications of the candidate submitted for review are on the priorities of SRTI-BAS Solar-Terrestrial Physics and Remote Sensing of Earth and Planets.

Comparison of the minimum required points in the regulations for the implementation of the Law on the Development of the Academic Staff in the Republic of Bulgaria (ZRASRB) at the Space Research and Technology Institute at the Bulgarian Academy of Sciences by groups of indicators for applying for a professorship in Area 4. Natural Sciences, Mathematics and informatics, Part 2 Professional area 4.4. Earth Science and points collected according to the materials submitted for participation in the competition show that for all groups of indicators B-E collected points significantly exceed the minimum required in the regulations.

Scientific and applied scientific contributions

I will focus on the main contributions of the candidate only in the submitted for review in this competition works. They relate to the applicant's work on major international and national programs and projects.

The candidate has **significant contributions to the study of the influence of solar activity and high- speed solar wind streams on the magnetosphere, auroral emissions and magnetic disturbances.** These include studies of the peculiarities of auroral latitudes emissions from all-sky camera data in Alomar, Norway and the MAIN (Multiscale Aurora Imaging Network) camera system in Apatity, Russia, and higher latitude data from Longierbien and Barentsburg at Svalbard. The development of the substorms was investigated and the variations in the oxygen emissions of 5577Å, 6300 Å and their ratio at auroral and high latitudes during high-speed recurrent fluxes in the solar wind were analyzed. For the first time, a definition of the polar end of a substorm bulge is proposed. Criteria for determining the boundaries of the polar end of the substorm bulge by optical measurements have been developed.

Another significant part of the candidate's work is the **use and creation of various models relating to time series, radiation transfer and optical spectra.** Her contributions are in the modeling and analysis of spectra of constituents of planetary atmospheres and to the modeling of time series and processes of radiation transfers.

Veneta Gineva participated in the study of the Stratospheric NO₂ Slant Column Abundance at Stara Zagora by applying Differential Optical Absorption Spectrometry (DOAS). The contributions are related to a **comparative analysis of the long-term trends of NO₂ for Stara Zagora, other European mid-latitude stations and 2 subtropical stations; study of changes in the CO₂ content of the atmosphere and the**

influence of various factors on these emissions; study of the influence of the concentration of CO₂ on the temperature course above the land and above the ocean.

Veneta Gineva has made important contributions to the **study of the influence of various factors on temperature and temperature trends**. This includes the study of time series of global and hemispheric temperature anomalies, investigation of the influence of Atlantic multi-decadal oscillation (AMO) on the trend of temperature anomalies in the different hemispheres and on global temperature anomalies, forecasting the course of temperature anomalies for the coming decades on the basis of the predicted course of CO₂ concentration and the AMO index values

V. Gineva is involved in the **design of optical research devices**. A device for rocket experiments was developed - a Lyman-alpha detector based on an ionization chamber and modern electronics, to detect the attenuation of direct Lyman-alpha radiation in the atmosphere.

Veneta Gineva actively **participates in numerous research projects as a leader or a member of the team**. The total number of projects, contracts and international collaborations with her participation is 24. In 11 of these the candidate was a manager: 3 projects for programs under FP6 of the European Union, 2 contracts with the Ministry of Education, 4 inter-Academy projects with Russia, 2 cooperation agreements with the Atmospheric Physics Group of Stockholm University and with the Belgrade Astronomical Observatory. Assoc. Prof. Gineva has participated in 13 projects: 3 space projects (Bulgaria-1300, Vega and Interball), 1 contract with Maritza-East mines, 1 contract on Theme 13 from the Technical Progress Fund, 2 contracts with the Ministry of Education, 1 EOARD Grant, 5 inter-Academy projects (1 with the Czech Republic and 4 with Russia), 1 contract under the National Research Development Strategy 2020 (ICAMOS).

Personal impressions: I have known Veneta Gineva for 40 years. She combines the skills of a researcher, organizer and leader of scientific teams with the skills to work in large international teams and to solve responsible tasks.

Conclusion

Assoc. Prof. Dr. Veneta Gineva is a well-known scientist in the country and abroad, with significant contributions to the solar-terrestrial physics and remote sensing of Earth and planets. The science-metric indicators and results visible in the publications, scientific and applied contributions of the candidate fully comply with the requirements of Law on the Development of the Academic Staff in the Republic of Bulgaria and its Regulations for occupation of the academic position of professor in the field 4. Natural sciences, mathematics and informatics, professional field 4.4. Earth Sciences. Therefore, I suggest the honorable members of the scientific jury to propose to the Scientific Council of SRTI-BAS to elect Assoc. Prof. Dr. Veneta Hristova Gineva in the academic position of "Professor".

Sofia
22 April 2020

Prof., DSc. Jordanka Semkova

ВЯРНО С ОРИГИНАЛА

