ATTITUDE OF REVIEWER

By Professor Dr. Evgeni Hristov Semkov, (IA and NAO, BAS)

on the competition for the occupation of the academic position "Associate Professor" in the professional field 4.1 Physical Sciences, scientific specialty "Heliophysics" for the needs of the "Sun and Solar System" department, on the topic "Active processes of the Sun, star activity and planetary systems", announced by the Institute of Astronomy and National Astronomical Observatory, BAS, according to an announcement in the Newspaper of State no. 47 of 14/06/2019

with one candidate, Dr. Nikola Ivanov Petrov, Chief Assistant at the Institute of Astronomy and National Astronomical Observatory, BAS

Dr. Nikola Petrov has completed his higher education for a master's degree at the University of Sofia "St. Kliment Ohridski" in 1996. He defended his dissertation for the doctorate degree in 2006 on the theme "Fine structure and dynamics of calm prominence. 15-cm coronograph for NAO-Rozhen". Since 1997, Nikola Petrov has worked at the Institute of Astronomy and NAO, and has been consistently occupying the positions of: physicist, chief assistant, head of the "Observations" department and Assistant director at the National Astronomical Observatory Rozhen.

The main scientific contributions of Dr. Nikola Petrov on the topic of the announced competition are in the following fields:

1. Active processes on the Sun. A detailed study of the solar corona and the active processes occurring therein, during total solar eclipses. Photometric observations during total solar eclipses to directly determine the electron density of the solar corona. Investigation of the influence of the earth's magnetic field and atmosphere on the distribution of the degree of polarization of light in the solar corona. Interferometric observations of the S-corona of the Sun, which is an important task not only for the physics of the Sun but also for the physics of the Sun-Earth interactions. Investigations of solar activity beyond solar eclipses, solar prominences and associated coronal structures. Determination of the dynamic parameters of the prominences, their environment and their importance for the occurrence of subsequent coronal discharges into the interplanetary space.

2. Stellar activity and studies of the active processes on both the Sun and other astronomical objects. Use of small telescopes in NAO Rozhen for photometric observations of double stars of W UMa stars from late spectral class (F, G, K). Studying the interaction of star winds; magnetic activity; mass and energy transfer and angular momentum; the merging of stars. Determination of a number of parameters of a little studied W UMa double stars such as mass, temperature, period, filling factor, radiuses of the components, etc.

3. Planetary systems and exoplanet studies. Observations with the telescopes of the IRIDA Observatory with a diameter of the main mirror 30 cm. Modeling and determination of the parameters of many of the little studied or newly discovered exoplanets.

Dr. Nikola Petrov has presented a list of 28 publications on the topic of the competition, of which 23 are in refereed scientific journals with an Impact factor (six in RAA and SAJ, three in NewA, two in Revista Mexicana de Astronomía y Astrofísica and Journal of Atmospheric and Solar-Terrestrial Physics and one each in Contributions of the Astronomical Observatory Skalnaté Pleso, AJ, PASA and Comptes rendus de l'Acade'mie Bulgare des Sciences) and five articles with impact rank (three in BlgAJ and one each in AIP Conference Proceedings and in Astronomical & Astrophysical Transactions). Dr. Nikola Petrov has provided a list of 39 citations of publications with excluded co-authors papers. The number of publications and citations is sufficient to cover the requirements for registration in the NACID database and the Regulations for the application of the Law on the Development of Academic Staff in Bulgaria for the occupation of the academic position "Associate Professor".

Dr. Nikola Petrov's personal contribution to the publications is beyond doubt, as his work is well known to the team of IA and NAO.

CONCLUSION

My categorical opinion is that the scientific results, publications in reputable astronomical publications, the scientific activity of the candidate Dr. Nikola Ivanov Petrov in IA and NAO fully comply with the requirements of the Law on the Development of Academic Staff in Bulgaria, its regulations and the criteria of the Institute of Astronomy and NAO for awarding of the academic position "Associate Professor". I recommend the Scientific Council of IA and NAO to elect Dr. Nikola Ivanov Petrov on the academic position of Associate Professor in the professional field 4.1 Physical Sciences, scientific specialty "Heliophysics".

Sofia
November 18, 2019

/prof. Dr. Evgeni Semkov/