

OPINION

**on a competition for academic position "Associate Professor"
in the professional field 4.1. Physical Sciences (General Physics),
for the needs of Sofia University "St. Kliment Ohridski" (Sofia University),
Faculty of Physics, announced in the State Gazette no. 57 of 29/06/2021**

Opinion prepared by:

Martin Vasilev Ivanov, Assoc. Prof., Dr., Institute for Nuclear Research and Nuclear Energy, Bulgarian Academy of Sciences as a member of the scientific jury of the competition: 4.1. Physical Sciences (General Physics) according to Order № RD 38-374 / 21.07.2021 of the Rector of Sofia University.

Only one candidate has submitted documents for participation in the announced competition:

Plamen Veskov Petkov, Assis. Prof., Ph.D., Department of Atomic Physics, Faculty of Physics, Sofia University "St. Kliment Ohridski"

I. General description of the materials presented

1. Details of the application

All submitted documents by the applicant comply with the requirements of ZRASRB, PPRASPB and the Regulations on the conditions and procedure for acquiring academic degrees and occupying academic positions at Sofia University "St. Kliment Ohridski" (PURPNSZADU).

Dr. Plamen Veskov Petkov has presented a list of 27 scientific publications, 13 of them published in the scientific journals (Journal of colloid and interface science, Colloids and Surfaces A: Physicochemical and Engineering Aspects, Nuclear Engineering and Design, etc.), 12 in Conference Proceedings, a monograph, and a chapter of a book. The candidate participates in the competition with a list of 23 scientific publications (including 4 for Assistant Professor), 9 of them are from group I (6 have a quartile Q1 and 3 - a quartile Q2), 1 from group II (quartile Q4) and 8 from group III, 1 monograph and 1 chapter of a book. Other documents (certificates from an employer, project manager, project sponsor, diplomas, etc.) in support of the candidate's achievements are also presented. The candidate has submitted all necessary for the competition documents.

I have no additional remarks and comments.

2. Details of the applicant

Dr. Plamen Veskov Petkov graduated from Leningrad State Technical University (St. Petersburg, Russia) in 1992 with a Master's degree in "Thermal Physics". In 2011, he earned his second

Master's degree in "Chemistry" in the Faculty of Chemistry at Sofia University "St. Kliment Ohridski".

He started his doctoral studies in 2010 with research supervisors Acad. Prof. Peter A. Kralchevsky and Corresponding Member Prof. Krassimir D. Danov and in 2016 he successfully defended his dissertation on "Interactions in mololayers of charged particles at a liquid interface and their surface pressure" for the awarding of a PhD in the scientific specialty 01.05.01 "Theoretical Chemistry - Macrokinetics".

The career development of Dr. Plamen Veskov Petkov is as follows: In 1992, Plamen Petkov started working as an Engineer Operator of Reactor VVER-440 at Kozloduy NPP. During the period 1992-2010, the candidate has held also other positions at Kozloduy NPP. In the period 2010 – 2016, he has worked as a chemist-analyst at Sofia University. In 2017, Dr. Plamen Veskov Petkov won a competition for Assistant Professor at the Department of Atomic Physics, Faculty of Physics at Sofia University, a position he has held up to this day.

Dr. Plamen Veskov Petkov has participated in three national projects (in two as a member of the team and in one as a leader) and in six international projects.

3. General characteristics of the applicant's scientific work and achievements

The research fields of Dr. Plamen Veskov Petkov can be summarized in four main groups: (i) Uncertainties analysis of data from measurements and calculations in the field of nuclear energy; (ii) Investigate and demonstrate the passive safety features of an innovative small modular fast-neutron reactor (STAR-LM project); (iii) Theoretical and experimental study of capillary bridges, stretched between two flat surfaces; (iv) Investigate of the surface properties of mololayers of charged particles located at the liquid/gas interface.

For the participation in the competition, Dr. Plamen Veskov Petkov has presented 23 scientific papers ("10B.SelectedPublicationsList.pdf", Appendix 2). The applicant claimed essential participation in 22 of his publications. Nineteen (5-23) of the presented scientific publications submitted for the competition have not been used in previous applications for acquiring a scientific degree or occupying an academic position.

There is no proven plagiarism in the scientific publications submitted of the candidate for the competition.

By no doubt, the presented scientific publications (5-23) by the candidate meet the minimum national requirements (Art. 2b, paragraphs 2 and 3 of ZRARB). The additional requirements of Sofia University "St. Kliment Ohridski", Faculty of Physics for the academic position "Associate Professor" in the scientific field and professional direction of the competition meet at about 90%, due to the following considerations:

- The indicator from Group B and D "Minimum 7 publications from Group I", in which the applicant has presented 6 works (№ 5, 8, 9, 11, 12, 14, Appendix 2).

- In Group D (indicator "8. Published chapter of a book or collective monograph"), Dr. Plamen Petkov has presented the works № 15, 17, 21, 22 (Appendix 2). The papers № 17 and 22 are materials from conferences in full text, which are not indexed in the world databases of scientific information (Web of Science and Scopus). In my opinion, these two works cannot be qualified as a chapter from a book and are evaluated with 0 points (not with 15 points).
- In Group D (indicator "7. Scientific publications that are indexed in world databases of scientific information (Web of Science and Scopus) ...") are presented works № 11-14, 16, 18-20, 23 (Appendix 2). The paper № 13 (Appendix 2) is indexed in the Web of Science database in quartile Q4. In my opinion, this work is evaluated with 12 points (not 15 points).

4. Characterization and evaluation of the applicant's teaching activity

- *Required documented teaching experience, equivalent to at least 2 years of full-time employment at Sofia University according to Art. 105. (1) of PURPNSZADSU*

Attached is a Reference for the educational employment of Assistant Professor Plamen Veskov Petkov, issued by the Department of Educational Activities of Sofia University on August 01, 2021, documenting total classroom employment for three consecutive academic years (from 2017/2018 to 2019/2020) of 885 hours with an annual standard for classroom employment of 270 hours and, accordingly, a requirement for a total of 540 hours.

- *Required scientific guidance of at least one successfully defended graduate and/or consulting of a successfully defended doctoral student*

Attached is a note (from the database for the scientific activity of Sofia University "St. Kliment Ohridski" - AUTHORS) certifying that Dr. Plamen Veskov Petkov was the scientific supervisor of four successfully defended master's or bachelor's theses.

5. Substantive analysis of the scientific and applied scientific achievements of the candidate contained in the materials for participation in the competition

Without giving a detailed description of the scientific achievements of Dr. Plamen Veskov Petkov, which represent the development of new theories, methods and enrichment of existing knowledge in four main scientific directions: (i) Uncertainties analysis of data from measurements and calculations in the field of nuclear energy; (ii) Investigate and demonstrate the passive safety features of an innovative small modular fast-neutron reactor (STAR-LM project); (iii) Theoretical and experimental study of capillary bridges, stretched between two flat surfaces; (iv) Investigate of the surface properties of monolayers of charged particles located at the liquid/gas interface. I would like to emphasize that the part of the results of the research are applied in the practice, namely the technical solution for the pilot implementation of the system for collecting large data sets of the second nuclear power unit of Kozloduy NPP.

Dr. Plamen Veskov Petkov provided 132 (107 according to SCOPUS) independent citations of his papers. The candidate has an h-factor 5, following the competition documents. He evaluates

his contribution as leading in 22 of the papers presented for the competition, 12 of them is the first author.

6. Critical notes and recommendations

Essentially, I have no critical remarks about the candidate.

7. Personal impressions

I do not know Dr. Plamen Veskov Petkov personally.

8. Conclusion on the application

After getting acquainted with the materials and scientific works presented in the competition and based on the analysis of their importance and the scientific contributions, **I confirm** that the scientific achievements meet the requirements of ZRASRB, the Regulations for its implementation and the corresponding Regulations of Sofia University "St. Kliment Ohridski" for holding the candidate for the academic position "**Associate Professor**" in the scientific field and professional direction of the competition. In particular, the applicant meets the minimal national requirements in the professional field (and about 90% of the additional requirements of Sofia University "St. Kliment Ohridski", Faculty of Physics for the academic position "Associate Professor", see point I.3). No plagiarism has been established in the scientific papers submitted for the competition.

I give my **positive** assessment of the application.

II. OVERALL CONCLUSION

Based on the above, **I recommend** the scientific jury to propose to the Faculty Council of the Faculty of Physics at Sofia University "St. Kliment Ohridski" to elect Dr. Plamen Veskov Petkov to take the academic position of "**Associate Professor**" in the professional field 4.1. Physical sciences (General Physics).

18. 10. 2021 г.

Signature:

(Assoc. Prof. Martin Vasilev Ivanov, Dr.)