

# REPORT

On a competition for the academic position "Associate Professor",  
Classification of professional field 4.1 Physical Sciences (General Physics),  
Announced by Sofia University "St Kliment Ohridski" in SG no. 54/29.06.2021

Applicant: Plamen Veskov Petkov, PhD,  
Assistant Professor in the Department of Atomic Physics,  
Faculty of Physics, Sofia University "St Kliment Ohridski"

Member of the Scientific Committee: Elena Dimitrova Mileva, DSc, Professor in IPC-BAS

## 1. Brief biographical notes

Dr Plamen Veskov Petkov has MSc degrees of Thermophysics in St. Petersburg Technical University (St. Petersburg, Russia) in 1992, and of Colloid Systems in Contemporary Science and Technologies in Sofia University "St Kliment Ohridski" in 2011. He has defended successfully a PhD Thesis in 2016 (Title: "Interactions and surface pressure for monolayers of charged colloidal particles at liquid interface") in the professional field 4.2 Chemical Sciences (Theoretical Chemistry – Macrokinetics). The thesis was elaborated in the Faculty of Chemistry and Pharmacy under the scientific guidance of Prof. P. Kralchevsky (Member of BAS) and Prof. K. Danov (Corr. Member of BAS). Since 2017 Dr Petkov is Assistant Professor in the Department of Atomic Physics, Faculty of Physics, in Sofia University "St Kliment Ohridski"

## 2. Scientific and applied activities

Dr. Petkov has authored 27 research papers. He is the first author of 14 papers. He has outlined 19 of them as particularly relevant to the present competition action. These studies do not repeat the scientific output for the PhD defense procedure, and 6 are grouped as habilitation topic. From these 19 papers 6 are published in journals from group I (Nuclear Science and Engineering (1), Nuclear Engineering and Design (2), Colloids and Surfaces A (3)), and 9 – in group III. He is a co-author of three book chapters published in foreign publishing houses. All application documents are in compliance with the requirements for academic position "Associate Professor" in the Faculty of Physics, Sofia University: Group A – 50 points (minimum 50 points), Group B- 105 points (minimum 100 points), Group G – 200 points (minimum 200 points), Group D – 214 points (minimum 100 points), Group E – 160 points (minimum 150 points). Additional points are also reported in Group A (75 points for papers included in the PhD Thesis).

The research activities of Dr Plamen Petkov are related to the following fields: (1) assessment of the reactivity uncertainty effects in nuclear power cases; (2) development and investigation of the safety functions for a small-scale modular neutron reactor; (3) theoretical and experimental studies on the capillary bridges between two flat interfaces; (4) theoretical and experimental studies on particle monolayers at fluid interfaces.

The total number of citations on the research publications of Assistant Prof. Dr. Petkov is 132; more than 60 of them are on the papers, relevant to the present competition action, with two of these having above 10 citations (№ 18 (Doc.2) – 16, № 12 (Doc.2) – 30); the h-index according to Scopus is 6. The research results of Plamen Petkov have been reported at 11 scientific events (Doc.6: 7 oral and 4 poster presentations).

Generally, the research interests of Plamen Petkov are focused on two major topics: nuclear power engineering and colloidal systems. His studies are well-focused and characterized by systematic choice of the investigated problems and the applied methodologies. Dr Petkov has participated in 9 projects, six of them are at international level, two – at national; he has been a principal investigator of one national project.

### 3. Teaching activities

The teaching activities of Assistant Professor Dr Plamen Petkov in the Faculty of Physics in Sofia University began in 2017. The teaching schedule of the applicant is diverse and intensive. The mean annual academic year teaching load (2019/2020) is above 1000 hours (885 regular hours, 359 auxiliary hours). Dr Petkov has supervised 4 students' thesis. He has participated in the organization, training of two teams, and the moderation of the international hackathon "HackAtom".

### 4. Conclusion

The overall documentation, including the data for scientific papers and the additional information about the diverse activities of Dr Plamen Petkov, present him as a highly qualified researcher and teacher. I think that his study accomplishments, the prospects of his broad-spectrum research, the nature and the quality of his teaching engagements completely cover the requirements and criteria, enumerated in the Rules and Conditions in applying for the academic position "Associate Professor" in Faculty of Physics, Sofia University.

**I am fully confident and readily recommend to the Honorable Faculty Council of the Faculty of Physics, Sofia University "St Kliment Ohridski" to endorse the academic title "Associate Professor" in the professional field 4.1 Physical Sciences (General Physics) to Dr Plamen Veskov Petkov.**

Sofia, November 07, 2021

(Prof. E. Mileva, DSc)