

## **Referee Report**

in a competition for the academic position "**Associate Professor**" in the professional direction 4.1. Physical sciences (theoretical and mathematical physics) for the needs of Sofia University "St. Kliment Ohridski "(SU), Faculty of Physics (FzF), announced in State Gazette no. 57 from 26.06.2020

**Candidate d-r Kiril Petrov Hristov, assistant professor in INRNE-BAS.**

### **General description of the submitted materials**

#### **1. Submitted documents**

The documents submitted by the candidate for the competition comply with the requirements of ZRASRB, PPZRASRB and the Regulations on the terms and conditions for acquiring scientific degrees and academic positions at Sofia University "St. Kliment Ohridski "(PURPNSZADSU).

For participation in the competition, the candidate Kiril Petrov Hristov has submitted in total 22 articles, all published in foreign scientific journals with impact factor. Also 15 other documents are presented, described in the Application of the candidate for admission to the competition. In particular, he has submitted a report on the implementation of the minimum national requirements for the respective scientific field, as well as of the additional requirements of Sofia University. The candidate has submitted all necessary for the competition documents.

#### **2. Details of the candidate**

The candidate was born in Sofia in 1985. He received a Bachelor degree from Jacobs University in Bremen in 2006 and Master degree at Utrecht University in 2008. He received a PhD degree in 2012 at Utrecht University. His dissertation was based on 5 publications (№ 2-6 in the list, all published in journals with IF and Q1). He worked then as Assistant Researcher at the University of Milano-Bicocca in 2012-2015. Since 2015 he is working at the INRNE-BAS, first as a physicist, then as an Assistant, then as a Assistant professor. For that position he had presented 4 articles (№ 7-10 in the list, all published in journals with IF and Q1). During these years he has also been a lecturer and supervisor of students at the respective universities. Since 2016 he has been teaching courses in Quantum Field Theory in the Master programme in Theoretical physics at the Faculty of Physics of Sofia University. D-r Hristov has taken part and given talks in many international conferences and at seminars in various scientific centers, among them - in Princeton, USA. The candidate has received many awards for excellent performance during his university studies. A joint Project proposal in the programme Horizon 2020 of d-r Hristov with the Katholieke Univesiteit, Leuven, has been given a Certificate (Seal of Excellence) by the European Commission for a "High-Quality Project Proposal in a Highly Competitive Evaluation Process". In Bulgaria he had received the annual award for the best scientific work in INRNE for 2016, the

Pythagorean Award for Young Scientist in 2017, the annual award for best scientific work at BAS for 2018, the Marin Drinov Award of BAS for Young Scientist in 2019.

### **3. General characteristics of the scientific works and achievements of the candidate**

The published articles of the candidate are in the field of string theory and supergravity, more concretely, on the analysis of the properties and the construction of new solutions of the black holes type. He continues his research in this field.

a) The 12 articles (№ 11-22 in the list, all published in journals with IF and Q1), their independent citations (262) and other related requirements (participation in scientific projects, supervising a PhD student) meet the minimum national requirements as well as the additional requirements of Sofia University for the academic position of Associate Professor in Theoretical and Mathematical Physics.

b) The 12 articles (which score 300 points in the groups A and D of the minimum national requirements), do not repeat those (listed as № 1-10) for acquiring a scientific title and academic position.

c) There is no proven plagiarism in the scientific papers submitted for the competition.

### **4. Characteristics and evaluation of the candidate's teaching activity**

According to the presented data the candidate was acting as a assistant in Bremen, with altogether 360 hours, assistant in Utrechts - 600 hours, lecturer at the Faculty of Physics of Sofia University - 540 hours. In total there are 1500 hours with a minimum of 540 hours required by the Faculty of Physics for this position.

### **5. Content analysis of the scientific achievements of the candidate contained in the materials for participation in the competition.**

The main achievements of the candidate are establishing new facts in modern fields of theoretical physics, which contribute to the enrichment of knowledge in them. His results are highly appreciated. The presented 22 papers have more than 600 citations, the 12 accounted for the minimum national requirements - 262, among them two with more than 50 citations. His total Hirsh factor is  $h=14$  (while  $h=5$  is required). The papers are written in collaboration with different collaborators and the contribution of d-r Hristov is substantial in all of them.

### **6. Critical remarks and recommendations**

I have no critical remarks on the scientific content of the candidate's articles.

I had some difficulty due to the absence of a detailed list of citations of each paper. In any case the number of citations is impressive, far beyond the requirements and a check, say in Scopus, shows that their number is in fact bigger than what noticed by the candidate. I would recommend to him to prepare such a detailed list of citations for future use.

## 7. Personal impressions of the candidate

I have a very positive impression from the talks of Kiril at the seminar of the "Theory of Elementary Particles" laboratory, as well as at several international conferences organised in Bulgaria. In the last two years he was responsible for the lab seminar and he initiated interesting presentations of quite a lot of foreign visitors.

## 8. Conclusion on the application

After getting acquainted with the materials and scientific papers presented in the competition and based on the analysis of their significance and their scientific contributions, I confirm that the scientific achievements meet the requirements of ZRASRB, the Regulations for its application and the respective Regulations of Sofia University "St. Kliment Ohridski" for holding the candidate for the academic position Associate Professor in the scientific field and professional field of the competition. In particular, the candidate satisfies the minimum national requirements in the professional field and no plagiarism has been established in the scientific papers submitted at the competition. I give my positive assessment of the candidacy.

## II. OVERALL CONCLUSION

Based on the above, I **strongly recommend** the scientific jury to propose to the competent authority for the selection of the Faculty of Physics at Sofia University "St. Kliment Ohridski" to choose Kiril Petrov Hristov to take the academic position of "Associate Professor" in professional field 4.1. Physical sciences (theoretical and mathematical physics) for the needs of the Faculty of Physics at Sofia University "St. Kliment Ohridski".

05.10.2020

Prepared the review:



(corresponding member of BAS, Dr.Sci. Valentina Petkova)