

OPINION

**on a competition for academic credibility „Associate Professor“
in the professional field 4.1. Physical Sciences,
for the needs of Sofia University ”St. Kliment Ohridski”, Faculty of Physics,
announced in the State Newspaper, issue 67/28.07.2020**

Opinion prepared by:

Nedialka Ilieva Stoilova, Assoc. Prof., Dr.Sci., 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 Theory of Relativity and Relativistic Astrophysics) according to Order № RD 38-383/06.08.2020 of the Rector of Sofia University.

Only one candidate has submitted documents for participation in the announced competition: Galin Nikolaev Gyulchev, Assis. Prof., Ph.D., Theoretical Physics Department, Faculty of Physics, Sofia University.

I. General description of the submitted documents

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).

The candidate Galin Nikolaev Gyulchev has presented a monograph and a list of 27 scientific publications, 10 of them published in the most prestigious international scientific journals (Phys. Rev. Lett., Phys. Rev. D, Eur. Phys. J. C, Annals of Physics), 12 in Conference Proceedings and 5 in electronic archives (in the meantime one of the preprints was accepted for publication in Eur. Phys. J. C). Galin Gyulchev participates in the competition with the monograph and 18 of his papers. Other documents (certificates from an employer, project manager, project sponsor, diplomas, etc.) in support of the candidate’s achievements were also presented.

I have no additional remarks and comments.

2. Details of the applicant

Galin Gylulchev earned his Bachelor degree in Physics (2000-2004) and Master degree in Theoretical and Mathematical Physics (2004-2006) at Sofia University. In 2006 he continued his education in Theoretical and Mathematical Physics at Sofia University as a Ph.D. student and defended a Ph.D. thesis in 2010. Galin Gylulchev worked as a Physicist at the Institute of Astronomy and National Astronomical Observatory (2004-2008) and since 2008 he has been working for Sofia University: as an Assistant (2008-2011) and as an Assistant Professor (2011-at present).

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

Galin Gylulchev's scientific results are in the most current fields of theoretical and mathematical physics. He has published and continues to publish on important issues in the field of general relativity, gravity and relativistic astrophysics. Analyzing the materials presented in the competition, I confidently declare:

- the scientific publications submitted by the candidate meet the minimum national requirements (Art. 2b, paragraphs 2 and 3 of ZRARB) and also the additional requirements of Sofia University "St. Kliment Ohridski" for the academic position "Associate Professor" in the scientific field and professional direction of the competition.
- there is no proven plagiarism in the scientific publications of the candidate.

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

Galin Gylulchev has taught many courses and in particular: Ordinary and Partial Differential Equations, Mathematical Methods in Physics, Mathematical Methods in Optometry, Electrodynamics, Theoretical Astrophysics. He has supervised one successfully defended Bachelor Diploma Thesis and its results were published in AIP Conference Proceedings.

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. Gylulchev, which represent the development of new theories, methods and enrichment of existing knowledge, I would like to emphasize the following results: the effect of gravitational lensing as a result of

compact object, in particular of black holes, in both strong and weak deflection regime is investigated; some relations between gravitational lensing and the frequencies of the quasinormal modes of black holes are studied; the shadows of compact objects, in particular of black holes and traversable wormholes are derived.

Dr. Gyulchev provided 337 independent citations of his papers. The candidate has an h-factor 7. He evaluates his contribution as leading in 14 of the papers presented for the competition and his co-author S. Yazadjiev confirms the significant contributions of the candidate.

6. Critical notes and recommendations

I have no critical notes and recommendations.

7. Personal impressions

I do not know Galin Gyulchev personally.

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. No plagiarism was found 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. Galin Nikolaev Gyulchev to take the academic position of "**Associate Professor**" in the professional field 4.1. Physical sciences (General Theory of Relativity and Relativistic Astrophysics).

19.11.2020

Signature:

(Assoc. Prof. Nedialka Stoilova, Dr.Sci.)