

Review/Opinion

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About a **competition for „Associate Professor”** in the field of Higher Education 4. Natural Sciences, Mathematics and Informatics, professional field 4.1. Physical Sciences (Biophysics and Medical Physics), announced in SG, issue 99/20.11.2020, for the needs of the Faculty of Medicine at Sofia University “St. Kliment Ohridski”.

1. Common part

The only candidate in the competition is Assistant Professor Dr. Dessislava Anri Lazarova from the Faculty of Medicine at Sofia University "St. Kliment Ohridski ". The documents provided show that the procedure for opening and announcing the competition has been followed by the rules. The documents have been prepared in accordance with the requirements of the Law on Development of Academic Staff in the Republic of Bulgaria (LDASRB), the Regulations for its implementation and the Regulations for Development of the Academic Staff (RDAS) at Sofia University “St. Kliment Ohridski ”. The candidate exceeds the Minimal National Requirements under Art. 2b of the Regulations for application of the LDASRB for the scientific field in which the competition has been announced.

2. Biographical data of the candidate

Dessislava Lazarova is born on April 8, 1981 in Sofia, Bulgaria. In 2004, she has obtained a bachelor's degree in "Molecular Biology", and in 2006 - a master's degree in "Molecular Biology – Biophysics", both at the Faculty of Biology of Sofia University "St. Kliment Ohridski ", Sofia, Bulgaria. In 2019, she successfully defended a PhD Thesis at the Faculty of Physics of Sofia University "St. Kliment Ohridski” and acquires the educational and scientific degree “Doctor” in the professional field 4.1. Physical Sciences, scientific specialty "Biophysics". Part of her PhD Thesis has been developed at the National Institute of Radiological Sciences of Japan, where Dr. Lazarova has specialized in 2014. The title of her PhD Thesis is: "Contrast-enhanced magnetic resonance techniques for visualization of pathologies associated with disorders in cellular redox status ”.

Since the end of 2008 to the present, Dr. Lazarova holds the academic position of "Assistant Professor" at the Medical Faculty of Sofia University "St. Kliment Ohridski ”.

In 2019, she acquired the specialty "Biophysics" in the field of Healthcare. She has over 10 years of academic experience.

She speaks two foreign languages: English and Russian.

Dr. Lazarova has excellent computer skills, administrative and organizational experience.

3. Overview of scientific activities

The reference of the candidate for fulfillment of the Minimal National Requirements (MNR) for holding the academic position "Associate Professor" in the professional field 4.1. Physical Sciences shows the following:

Minimal National Requirements	Reference of the candidate
Index A: 50 points	Index A: 50 points
Index B: 100 points	Index B: 100 points
Index C: 200 points	Index C: 261 points
Index D: 50 points	Index D: 214 points
Index E: no points are required for academic position "Associate Professor"	Index E: 150 points

The presented report for implementation of the MNR is based on:

- (1) Thesis for Doctor's degree (PhD) (6 publications on the PhD Thesis: 4 in journals with IF and 2 in non-refereed journals with scientific peer-review).
- (2) Publications on Index B - 5, with total IF=8.628.
- (3) Publications on Index D - 15, of which 11 with total IF=26.253 and 3 with total SJR=0.383.
- (4) At present, 107 citations have been found in scientific papers, referenced and indexed in Web-of-Science and Scopus (the complete list of citations includes a total of 144 citations, excluding auto-citations and hidden auto-citations).
- (5) Coordinator of a project under the OP "Human Resources Development", co-financed by the European Social Fund of the European Union with the Basic Organization Sofia University "St. Kliment Ohridski ", Faculty of Medicine and participant in 15 national scientific and educational projects.

The list of scientific papers on the competition also includes 5 publications in unreferred journals with scientific peer-review and over 20 oral or poster presentations on scientific forums.

All studies of the candidate relate to the profile of the present competition.

I would like also to note that the article recently published in *Analytical Chemistry*, in which Dr. Lazarova is the first author, has *over 15 highlights* in the public media in Japan and the electronic media around the world. The article is dedicated to the development of a quantum sensor for detection of oxidative stress in living biological objects using magnetic resonance and fluorescent techniques.

4. Scientific contributions of the candidate in the field of Biophysics and Medical Physics

Dr. Lazarova has concisely and accurately described the scientific contributions of her experimental and theoretical studies, that can be summarized in the following fields of Biomedical Sciences and in particular, of Biophysics and Medical Physics:

- (1) Modulation of cellular redox status and increasing the sensitivity of cancer cells to conventional chemotherapeutics.
- (2) Nitroxide-enhanced magnetic resonance techniques for assessment of cellular and tissue redox status.
- (3) Optical imaging (in particular, fluorescent imaging using quantum dots and conventional organic fluorophores).
- (4) Development of new contrast multimodal probes and quantum sensors for imaging diagnostics.
- (5) Development of algorithms for processing and extraction of contrast-enhanced signals from images obtained by magnetic resonance tomography in vivo.
- (6) Abiotic stress in plants and reactive oxygen species.
- (7) Mechanisms of resistance to extreme drought of *Haberlea rhodopensis*.

Many of the scientific contributions of Dr. Lazarova are with potential application in the biomedical diagnostics.

5. Educational activities

Dr. Lazarova has over 10 years of educational/teaching experience in the field of Biophysics and Medical Physics. Since 2008, she has been leading practical classes in Biophysics, and since 2015, in Medical Physics for under-graduate students in Medicine, as well as separate lectures in Biophysics for under-graduate students in Nursing. The total annual workload of Dr. Lazarova exceeds 600 teaching hours.

Dr. Lazarova has an very high authority among students and faculty members.

6. Expert and organizational activities

Dr. Dessislava Lazarova has excellent organizational skills. She is very active in organizing the scientific and educational work in the Department of Physics, Biophysics and Roentgenology. Since 2014, she has been a member of the General Assembly of the Sofia University "St. Kliment Ohridski" (from the quota of the Faculty of Medicine), a member of the Faculty Commission for Quality of the Faculty of Medicine. Since 2019, she has been a Secretary of the Faculty Council of the Faculty of Medicine. These positions are a high recognition for her professional and organizational skills.

CONCLUSION

Since the beginning of her scientific career, Assistant Professor Dr. Dessislava Lazarova has been working in the field of Biophysics and Medical Physics. Experimental and theoretical studies of the candidate are in the priorities of the Department of Physics, Biophysics and Roentgenology at the Faculty of Medicine of Sofia University "St. Kliment Ohridski", for the purposes of which this competition has been announced.

During her research and teaching career, she has gained excellent experience and generated original scientific ideas.

The scientific activities of Dr. Lazarova completely cover and in some of the indexes exceed the Minimal National Requirements for holding the academic position of "Associate Professor", specified in the Regulations for the implementation of the LDASRB. Dr. Lazarova is a very good scientist and an excellent university lecturer.

Given the above, I strongly recommend to the esteemed Scientific Jury to propose to the Faculty Council of the Faculty of Medicine at Sofia University "St. Kliment Ohridski" to award Dr. Dessislava Anri Lazarova the academic position of "Associate Professor" in the professional field 4.1. Physical Sciences (Biophysics and Medical Physics).

Signature:.

Prof. Rumiana Atanasova Bakalova-Zheleva, PhD, DSci

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