REPORT

on the competition for occupying the academic position Associate Professor in the professional field 4.3. Biological Sciences (Crystallization and Structural Analysis of DNA and Proteins) for the needs of the Institute of Mineralogy and Crystallography "Acad. Ivan Kostov - BAS.
announced in the State Newspaper 95, from 14.11.2023, p. 104.
applicant assistant professor Hristina Ilieva Dimitrova
member of the academic jury prof. Rositsa Nikolova

The following report has been prepared on the basis of Order № 27PD09 of 10.01.2024 issued by the Director of the Institute of Mineralogy and Crystallography "Acad. Ivan Kostov" and the decision of the scientific jury from 25.01.2024. The report meets the requirements of the Academic Staff Development Act in the Republic of Bulgaria (ASDA), the Regulations for its Implementation (RAPASRB) and the Regulations of the Institute of Mineralogy and Crystallography "Acad. Ivan Kostov - Bulgarian Academy of Sciences.
Assistant Professor Dimitrova participate in the competition for occupying the academic position " associate professor " with 23 scientific articles (20 in journals indexed in WoS and SCOPUS) published in the period 2013-2023. Eleven of the scientific papers were published before 2019, when the candidate in the current competition was elected to the academic position of "Assistant Professor". All publications are co-authored, with the candidate being first author on three and corresponding author on four of them. As of 5.03.2024, according to the information available in the WoS database, Assistant Professor Dimitrova is a co-author of 13 scientific publications, and according to SCOPUS she is a co-author of 21 scientific publications, cited 61 times (SCOPUS without citations of all co-authors) and has h-index of 5. In the period 2012-2022, the candidate has reported the scientific results of her research at 12 international scientific forums. For the last ten years, Assistant Professor Dimitrova has been a leader of two research projects and a member of the scientific teams of two others, financially supported by the Research Fund and the European Structural Funds.

Assistant professor Dimitrova meets the requirements for occupying the academic position "Assistant Professor ", published in ASDA (Chapter 3, Section III) and in the Regulations for its implementation namely: Dr. Dimitrova is registered in the Nacional Center for Information and Documentation – (NaCID) (https://ras.nacid.bg/dissertation-preview/47955), where her doctoral degree and academic rank "assistant professor" are recognized; according to the data published in NaCID Dr. Dimitrova gained the academic position "assistant professor" in 2019 and have occupied this position for more than two years - the period required by the normative documents; the publications and citations submitted for the competition do not repeat the ones presented for the PhD degree; there is no evidence of plagiarism in the scientific works, presented by Dr. Dimitrova for participation in the current competition; Dr. Dimitrova has submitted for participation in the competition detailed information about his scientific activities. Under indicator 4 of group B, 5 publications are included, giving **105 points for group B**. For group D, indicator 7, 18 articles were submitted, 15 published in refereed and indexed journals, two in international academic journals and one in "Bulgarian Science" journal. Publications numbered 5,7,14 do not carry points according to the requirements of professional field 4.3., and the remaining 15 carry **272 points for group D**. The presented 85 citations give **170 points for group E**. The total number of points calculated from the presented documents **is 492**, which exceeds the number of 430 points which are required by the Regulations on the Conditions and Procedure for the Acquisition of Scientific Degrees and for the Occupation of Academic Positions in the BAS.

The main scientific contributions of Dr. Dimitrova are in two interrelated areas: the preparation of high quality single crystal samples from fragments of DNA molecules and proteins, requires knowledge of the influence of each of the components of the crystallization environment as well as skills in conducting experiments; solving the crystal structure, in turn, requires very good training in structural analysis, including operation of a single crystal diffractometer, low temperature analyses, operation with specialized software, and theoretical knowledge of the symmetry and structure of DNA and protein molecules. Dr Dimitrova acquired all these skills while preparing her thesis and now uses them to solve scientific problems related to the discovery of new drugs. On the basis of the structural analyses, the interaction of a small biologically active molecule with a DNA or protein fragment of interest could be assessed. The assessment I can make is in terms of single crystal X-ray structural analysis. I have known Associate Professor Dimitrova's work for more than ten years and I can confidently say that she is a specialist in the field of large molecule structural crystallography. This is confirmed by the quality of the results for six large molecule fragment crystals published in the structural database RCSB PDB (Research Collaboratory for Structural Bioinformatics Protein Data Bank). I should note that experimental and structural data undergo a rigorous review process to be published in this database, as once published they are used by the entire crystallographic community. The applicant is also actively involved in research projects with colleagues from BAS institutes and universities in the country. She leads research projects funded by the National Research Foundation and trains young specialists.

In conclusion, I can confirm that the materials presented by Dr Hristina Dimitrova show that she meets the requirements of the normative documents for acceptance to the academic position of "Associate Professor". Dr. Dimitrova is an expert in the field of X-ray structural analysis and her studies are an important part of the scientific research of the "Structural Crystallography and Materials Science" Department at IMC-BAS. Her participation in scientific teams of projects of national and European importance and responsibility for the training of young scientists give grounds to assume that in the future she will continue to contribute to the development of scientific topics, including the study of the structures of large molecules and the interaction of biologically active components with DNA and proteins. That is why I suggest to the respected members of the scientific jury to vote FOR the election of assistant professor Dimitrova for the academic position "Associate Professor" in professional direction 4.3. Biological Sciences (Crystallization and Structural Analysis of DNA and Proteins).

On the basis of the said-above, I would like to recommend to the Scientific Council of IMC to support the election of Assistant Prof. Hristina dimitrova PhD at the academic position of a "Associate Professor".

20.03.2024 Member of the academic Jury: Prof. Rositsa Nikolova