



REVIEW

by Prof. Ekaterina Anguelova Batchvarova, Corr.-member of BAS

member of the scientific jury in a competition for the academic position of "Professor" in professional field 4.4 "Earth Sciences", scientific specialty "Meteorology", in the section "Modeling of atmospheric pollution", department of Meteorology of NIMH
The competition was published in the State Gazette no. 103 / 10.12.2021

This review was prepared on the basis of the Order of the Director General of NIMH № ND-04-4 from 04.02.2022 and the decision of the scientific jury, taken at the meeting of 15.02.2022. It is in accordance with the requirements of the Law for the development of the academic staff in the Republic of Bulgaria (ZRASRB), the Regulations for its implementation (PPZRASRB) and the Regulations of the NIMH under ZRASRB. The review consists of three parts and a conclusion.

I. Requirements to the candidate

under Art. 29 (1) and Art. 29b of ZRASRB, art. 60 of PPZRASRB and Art. 56 (1), (2) and Art. 57 (1) of the Regulations of the NIMH under ZRASRB

A sole candidate in the competition is Assoc. Prof. Dr. Emilia Venkova Georgieva, born in 1958. She holds MSc in Meteorology since 1982 from the Faculty of Physics at Sofia University "St. Kliment Ohridski". She has worked at the Institute of Geophysics within the Bulgarian Academy of Sciences as a physicist, PhD, researcher degrees I-III and associate professor during the period 1982-2011. In 1990 she defended a PhD dissertation on "Meteorological aspects of wind energy resources in Bulgaria - numerical models for the restoration of the wind field". Doc. Georgieva lists in her CV a number of specializations: 2 months in Novosibirsk, Russia, in 1984; 10 months at the University of Hanover, Germany in 1991-1992; several ICTP grants at the University of Genoa. From 2003 to 2006 she was a visiting professor at the University of Genoa, Italy, and from 2008 to 2011 she was employed as a contract agent at the Joint Research Centre (JRC) of the European Commission, Ispra, Italy. In April 2012 she was employed at NIMH as an associate professor. She is currently the Head of the Air Pollution Modelling Section at the Department of Meteorology. Her professional experience is mainly in the field of air pollution and evaluation of modelling results against observation data.

II. Requirements for candidate's research and applied research

Art. 29 (1), item 1, item 3, item 4, item 5, item 6, (2) and (3), Art. 29b (1) of ZRASRB, art. 60 (1), item 3, item 4, item 5, (2) and (4) of PPZRASRB, Art. 56 (1), item 1, item 4, item 5, item 6, item 7, (2), (3) of the Regulations of the NIMH under ZRASRB

In her documents submitted for review in this competition Assoc. Prof. Dr. E. Georgieva presents research performed after the scientific degree PhD and the academic position "Associate Professor". In the materials she includes scientific publications, information on citations, references for participation in and management of scientific and applied research projects a summarized declaration of research achievements, as well as a report on the accomplishment of the minimum requirements for acquiring the academic position of "professor" in higher education field 4. Natural sciences, mathematics and informatics and professional field Earth sciences:

SUMMARY TABLE

FOR THE VOLUME AND TYPE OF SCIENTIFIC PRODUCTION under Art. 1a (1) and (2) of PPZRASRB and Art. 2 (4) of the Regulations of the NIMH under ZRASRB

of Assoc. Prof. Dr. Emilia Venkova Georgieva

| Group Indicators | For participation in the competition for professor | |
|------------------|--|---------------------------|
| | Number of points of the candidate | Required number of points |
| A | 50 | 50 |
| Б | - | - |
| B | 128 | 100 |
| Г | 262 | 200 |
| Д | 1019 | 100 |
| E | 469 | 150 |

The indicators of **Group A** refer to existence of a PhD, which brings 50 points. Assoc. Prof. Dr Georgieva holds a PhD since 1990. The indicators in **Group Б** are associated to existence of a DSc (Doctor of Sciences) title and is not applicable here, so no points are introduced in the Table above.

In **Group B** points are collected from at least 10 scientific papers published in refereed and indexed in world databases of scientific information (60/n points for each publication, n-number of authors). Assoc. Prof. Dr. Georgieva presents 11 such

publications, all in co authorship and in English. All works are in the field of air pollution, assessments and analysis of model results and published in the period 2012-2021. Ten of them have been published in international journals, nine of which with IF. In this way, Assoc. Prof. Dr. Georgieva claims 128 points at minimum requirement of 100 points. I assume the requirements of **Group B** fulfilled.

In the **Group Γ** indicator 7 Assoc. Prof. Dr. Georgieva presents 23 research articles published in editions, that are refereed and indexed in world databases with scientific information bringing 40/n points for each publication. Fourteen of these articles have been published in international journals with impact factor, and the remaining nine have been published in full text in proceedings of international conferences. These works present results from air and precipitation pollution studies through modelling and observations, as well as model evaluations and all are in the period 2004-2022. For the indicator 8 (scientific publications in other journals with scientific reviewing or in edited collective volumes - 20/n points for each publication) Assoc. Prof. Dr. Georgieva lists 13 publications, 12 of which are in English and 1 - in Bulgarian and again on air quality research mainly. The topics are diverse, although all are dedicated to different aspects of air pollution and published during the period 2005-2020. In this way in **Group Γ** Assoc. Prof. Dr. Georgieva claims 262 points while 200 are required. I agree with this.

In **Group Δ** the candidates for academic positions present indicators related to the independent citations of their work. In indicator 10 (citations in scientific journals, refereed and indexed in world databases with scientific information or in monographs and collective volumes, where 5 points per citation are given) Assoc. Prof. Dr. Georgieva presents 189 citations, i.e. 945 points. 28 publications are cited, and the paper *Perrone MG, S Vratolis, E Georgieva, S Török, K Šega, B Veleva, J Osán, I Bešlić, Z Kertész, D Pernigotti, K Eleftheriadis, ÇA Belis (2018) Sources and geographic origin of particulate matter in urban areas of the Danube macro-region: The cases of Zagreb (Croatia), Budapest (Hungary) and Sofia (Bulgaria). 2018/4/1. Science of Total Environment, 619, 1515-1529* got 24 citations. In indicator 11 (citations in monographs and collective volumes with scientific reviewing, where 3 points per citation are given) she presents 22 citations, i.e. 66 points, and in indicator 12 (citations in non-referenced journals with scientific reviewing) - 4 citations of 2 points per citation are listed, i.e. 8 points. The total number of points collected in **Group Δ** is 1019, with which I agree as all the information is clearly and correctly presented. Thus, the requirement of 100 points is largely exceeded.

In **Group E** indicators the candidates for the academic position "professor" prove their participation and leadership of research and education projects. Assoc. Prof. Dr. Georgieva shows considerable activity in this area. In indicator 15, 3 projects funded by the Bulgarian National Science Fund, Ministry of Education and Science and Ministry of Environment and Waters with her participation are listed bringing 30 points. For the indicator 16 (participation in international research or educational projects) she presents a list of 8 projects, 3 of which are COST activities, other two projects are under bilateral collaboration between BAS and the Italian CNR, two others are led by the EC-JRC, Ispra, and finally a project, where the participants are Bulgarian organizations, but the funding is by the European Regional Development Fund. She got 160 points from these projects. For managing activities (indicators 17 and 18), Assoc. Prof. Dr. Georgieva presents two

projects with national and 3 with international funding, of which she gets 160 points. For the five projects, led by the candidate, she claims she attracted more than 600000 BGN to NIMH and pretends additional 120 points, indicator 19. Thus, in **Group E** Assoc. Prof. Dr. Georgieva scored 460 points at required 150 points. I have to notice that in this group of indicators Assoc. Prof. Dr. Georgieva is not so completely correct in her pretention, as in the projects DEP (15.12.2016 – 27.02.2022) and SIDUAQ (15.06.2018 – 01.12.2020) she has not been the manager firstly when the projects were won and for the entire periods. So, for the funding attracted to NIMH other scientists also had contribution. I would appreciate if these facts were mentioned in the documents with some proportional reduction of claimed points in indicators 17, 18 and 19, moreover the points collected would be again much more than required. In the same time, I prise highly the abilities of Assoc. Prof. Dr. Georgieva to motivate her colleagues, to organize and control the work on different project packages, to follow all requirements of the funding agencies, and to write in time the required reports.

In the list of her scientific achievements, Assoc. Prof. Dr. Georgieva points that her overall activity have been in the field of numerical modelling of atmospheric processes - from the development of diagnostic models for wind in complex areas (her doctoral dissertation), through modelling and evaluation of the dispersion of pollutants in the air with different complexity models, to the application of models in scientific and applied tasks (assessment of wind energy, analysis of ambient air quality, comparison of model results with measurements and with other models results, development of models for regulatory purposes). In her list of contributions, she summarized her activities in the following five main areas:

- ✓ Development (more correct participation in the development) of a methodology and software product for harmonized assessment of model results for air pollution applications (DELTA-tool)
- ✓ Evaluation of model results using different approaches
- ✓ Study of the deposition of atmospheric pollutants in Bulgaria
- ✓ Use of satellite data in air pollution modeling
- ✓ Study of effects of meteorological parameters and emissions on modelled and/or observed concentrations and depositions of air pollutants.

I agree with these formulations of achievements, moreover it has to be noted that Assoc. Prof. Dr. Geogieva provides detailed description of her work in each of them, relating to this her most important relevant publications.

I need to note that I am co-author with Dr Georgieva in one of the 11 publications in Group B and in 7 of Group Г. We did work together and I do not asses those, but even without these publications all requirements of the law for the position "professor" are fulfilled. I did manage 4 of the listed projects for different periods and we did participate together in other two, which (if pointed out) also does not affect the fulfilment of the indicators in Group E.

III. Opinions, recommendations and notes

I know Assoc. Prof. Dr. Georgieva since the beginning of her scientific activities – with no doubt she did pass all stages starting with the MSc, through PhD (1990), associate professor (2001) to professor now, all the time strictly following all requirements and using all opportunities of the scientific work – deep knowledge of the topics, through work in teams, international collaboration, publications, participation in conferences and projects. I was reviewer also for her application for the position of associate professor in 2001.

I have been working with her in many projects listed in these documents and have always had very good impressions. I think that between us there was always collaboration, correctness and goodwill – I hope this will continue so we could contribute to the development of the physics of the atmosphere in our country in future.

As I mentioned, I was puzzled by the inaccuracy of some indicators in Group E, moreover this was not critical for meeting the criteria for the position.

Conclusion

Checking the submitted for the competition materials I did not reveal any violations in the procedure. The requirements of Art. 29 (1), (2), (3), Art. 29b (2), (3) of ZRASRB, art. 60 (1) (2) and (4) and Art. 61 (1), (3) of PPZRASRB Art. 56 (1), item, item 4, item 5, item 6, item 7, (2), (3) of the Regulations of NIMH under ZRASRB are fulfilled.

Based on the acquaintance with the documents of the candidate and the evaluation of her publications, I give a clear and definite assessment that Assoc. Prof. Assoc. Prof. Dr. Emilia Vėnkova Georgieva fully deserves to be awarded the academic position of "Professor" and call on other members of the Distinguished Scientific jury to join this assessment.

Date:

Reviewer:

/ prof. DSc Ekaterina Batchvarova,
corr.-member of BAS /