

## OPINION

by

Dr. Senya Terzieva, Professor at the University of Chemical Technology and Metallurgy  
(scientific degree, name, surname – academic position in a scientific organization)  
of the materials submitted by Senior Asst. Prof. Dr. Antoaneta Anastasova Angelacheva,  
for participation in a competition for the academic position “Associate Professor”  
in Plovdiv University “Paisii Hilendarski”

in field of higher education 1. Pedagogical Sciences  
professional field 1.3. Pedagogy of teaching in....  
scientific specialty “Methodology of teaching Chemistry”

The current competition for “Associate Professor” has been announced in the State Gazette, issue 40 of 14.05.2021 and on the website of Plovdiv University “Paisii Hilendarski”(PU).

The competition is for two places.

### 1. General presentation of the procedure

By order № P33-3163/13.07.2021 of the Rector of Plovdiv University “Paisii Hilendarski”(PU) to a member of the scientific jury of a competition for the academic position “**Associate Professor**” in PU (two places), in field of higher education 1. Pedagogical Sciences, professional field Methodology of teaching Chemistry, **announced** for the needs of the Department of General and Inorganic Chemistry at the Faculty of Chemistry of Plovdiv University.

**Two candidates for the two places** have submitted documents for participation in the announced competition:

1. Senior Asst. Prof. Dr. Antoaneta Anastasova Angelacheva – Department of General and Inorganic Chemistry with Methodology of teaching Chemistry, Faculty of Chemistry of Plovdiv University
2. Senior Asst. Prof. Dr. Yordanka Petrova Stefanova – Department of General and Inorganic Chemistry with Methodology of teaching Chemistry, Faculty of Chemistry of Plovdiv University

## **2. Scientometric data for Senior Asst. Prof. Dr. A. Angelacheva**

The set of materials in electronic form submitted by the Senior Asst. Prof. Dr. A. Angelacheva is in accordance with the requirements of the Regulations for implementation of the Law on the Development of the Academic Staff of the Republic of Bulgaria and the relevant Regulations of Plovdiv University.

The candidate for associate professor has applied a Diploma for Educational and Scientific Degree "Doctor" in the scientific field "Methodology of teaching Chemistry" (Indicator A1 – 50p.), a list of 8 publications on the topic of the dissertation (Indicators from Group G – 55p.), a list and e-copies of 31 scientific publications for participation in the competition.

According to the indicators of the Regulations for implementation of the Law on the Development of the Academic Staff of the Republic of Bulgaria for the scientific field 1 Pedagogical sciences, the publications for participation in the competition are:

- Published monograph, which is presented as the main habilitation work (Indicator B3 – 100p.).
- Published monograph, which is not presented as the main habilitation work (Indicator G4 – 100p.).
- Published book, based on the defended dissertation for obtaining educational and scientific degree "doctor" (Indicator G5 – 75p.).
- 7 scientific articles in a Bulgarian specialized journal, which is referenced and indexed in SCOPUS (Indicator G6 – 135 p.).
- 21 articles and reports published in Bulgarian unreferenced journals with scientific review or edited collective volumes (Indicator G7 – 205p.).

The total number of points for scientific papers as of Indicators from group G is 515 points, *which significantly exceeds the minimum national requirements for associate professor* (200p.).

A total of 16 citations are presented by the candidate in the reference: 5 citations (Indicator D11 – 75p.) of publications, 11 citations (Indicator D12 – 110p.) of 8 publications. The total number of points for all citations is 185 points, which exceeds the minimum national requirements for associate professor (50p.).

## **3. General characteristics of the activities of Senior Asst. Prof. Dr. Y. Stefanova**

*Pedagogical activity*

Sen. Asst. Prof. Dr. Y. Stefanova reports: academic employment (lectures, seminars, practices) with students from bachelor and master programs in professional field 1.3. Pedagogy of teaching ... (Chemistry); participation in the preparation and actualization of curricula for compulsory and elective subjects in the scientific specialty of the competition; 3 published textbooks for students in the scientific specialty of the competition (2 are composed independently); supervision of 9 graduates in Biology and Chemistry.

*A positive assessment* of the candidate's pedagogical activity can be formed.

*Scientific and scientific-applied activity*

Sen. Asst. Prof. Dr. A. Angelacheva reports: participation in 4 university scientific projects; participation in 9 national and 17 international conferences, all held in Bulgaria; most of the reports have been published in conference proceedings.

A positive assessment can be offered for the candidate's scientific activity, but it may be recommended to expand participation in project activities and scientific conferences outside the country.

*Contributions and citations*

Sen. Asst. Prof. Dr. A. Angelacheva presents a self-assessment of her scientific-applied contributions in three directions.

Гл. ас. д-р А. Ангелачева е представила самооценка на научно-приложните си приноси в три направления.

- *Educational chemical experiment*

In this problem area the candidate has grouped her habilitation work (№ 1), 8 scientific publications (№№ 4, 8, 9, 11, 24-27; 3 of them in co-authorship) and 3 textbooks (№№ 32,33,34; 1 of them in co-authorship). Three of the publications are scientific articles (№№ 4, 8 and 9), presented in the journal "Chemistry. Natural sciences in education.", which is referenced and indexed in SCOPUS from 2006 to 2017.

Citations are described as follows: habilitation work (№ 1) and one article (№ 9) are cited in two monographs; publication № 9 and one of the independently written textbooks (№ 34) are cited in a collective volume with scientific review; the same textbook is cited in a scientific article in the journal "Chemistry. Natural sciences in education."

In the annotation of the monograph, the candidate has described in detail the content of the text and indicated the application for innovation. I evaluate as interpretative the research on the nature and classifications of the educational chemical experiment (Chapters: First, Second and Third). I evaluate as innovative the ideas and models presented in the Fourth Chapter: 1. A

methodology for preparing teachers for the application of the teaching experiment in teaching Chemistry has been developed; 2. Cognitive models for experimental study of chemical objects have been constructed in order to form and develop natural science literacy of students – future Chemistry teachers.

After reviewing the monograph and scientific articles (№№ 4, 8, 9, 11) I believe they are relevant and represent scientifically applied contribution to the Methodology of teaching Chemistry.

- *Environmental education*

In this problem area the candidate has included the book based on defended dissertation for the award of educational and scientific degree “doctor”, 4 scientific articles (№№ 5-7, 10; one of them - independent) and 9 independent poster reports (№№ 13, 15, 16, 20, 21, 23, 28, 29, 31). Citations are described as follows: publication № 10 is cited in an article in the journal “Chemistry. Natural sciences in education.”; there is data for 3 citations of 2 publications which are in the list on the topic of the dissertation.

It is noteworthy that the book based on the defended dissertation was published in 2019, which is 13 years after the defense of the dissertation (2006). Nevertheless, the focus in the First Chapter is on tracing the ideas of authors who are representatives of the Bulgarian school and the Russian school; the number of references to sources published in Latin alphabet is very small (22). The created didactic model for realization of ecological education in the process of chemical education can be considered as innovative; it is interesting to consider the goals, the curriculum, the system of methods and means of teaching chemistry in the context of environmental education. In the second part of the book the text is developed for only one topic – VA (15) group of the Periodic Table which is more appropriate for the content of a textbook.

After reviewing the materials, I evaluate as innovative the ideas and models presented in the first part of the book (№ 3) and in the scientific articles. I believe that these studies of Sen. Asst. Prof. Dr. A. Angelacheva enrich the theory and practice with new touches, are relevant and represent a scientifically applied contribution to the Methodology of teaching Chemistry.

- *Organization and control of the process of teaching Chemistry*

In this problem area the candidate has grouped monograph № 2 which is not presented as habilitation work, as well as 5 independent poster reports from conferences (№№ 12, 14, 18, 19, 22). There is data that monograph № 2 (published in 2020) is cited in a monograph, published in 2021.

I evaluate as interpretative the research presented in the First Chapter of the monograph. I believe that the models created in the Second Chapter have an applied character in the field of Chemistry teacher training. It is noteworthy that in this work the focus is again on the Bulgarian tradition and on the Russian schools with very little reference to English-speaking authors (16).

In the future, I recommend that in the preparation of scientific texts, the bibliographic reference with foreign language publications be purposefully expanded in order to gain more experience from research around the world.

## CONCLUSION

The documents and materials submitted by Sen. Asst. Prof. Dr. Antoaneta Anastasova Angelacheva **meet** the requirements of the Law on the Development of the Academic Staff of the Republic of Bulgaria and the relevant Regulations of Plovdiv University "Paisii Hilendarski". The candidate in the competition has submitted a sufficient number of scientific papers published after the materials used for the defense of Educational and Scientific Degree "Doctor" and a sufficient number of citations.

After getting acquainted with the materials and scientific papers presented in the competition and after analyzing their content and contributions, I give my **positive** assessment and recommend to the Scientific Jury to prepare a report-proposal to the Faculty Council of the Faculty of Chemistry at Plovdiv University "Paisii Hilendarski" for election of Senior Assistant Professor Dr. Antoaneta Anastasova Angelacheva for the academic position "associate professor" at Plovdiv University "Paisii Hilendarski" in professional field 1.3. Pedagogy of teaching in..., scientific specialty Methodology of teaching Chemistry.

10 September 2021

**Opinion stated by:**

Prof. Dr. Senya Terzieva