ATTITUDE OF REVIEWER

Assoc. Prof. Dr. Angelina Stoyanova-Ivanova,
Institute of Solid State Physics - Bulgarian Academy of Sciences
Member of the Scientific Jury
in competition for the academic position of "**Associate professor**"
in professional field 4.2. "Chemical Sciences" (Inorganic Chemistry),
in laboratory "High Temperature Oxide Systems"
announced by the Institute of General and Inorganic Chemistry-BAS,
with the sole candidate Chief Assistant Dr. Albena Bachvarova-Nedelcheva

One applicant - Dr. Albena Bachvarova-Nedelcheva from the Institute of General and Inorganic Chemistry of the Bulgarian Academy of Sciences has submitted documents in competition for occupying the academic position of "**Associate professor**" in 4.2. "Chemical Sciences" (State Gazette, N36 / 03.05.2019) in the "High Temperature Oxide Systems" laboratory. All the materials in the competition are regular and meet the minimum national requirements of the Law for the Development of the Academic Staff in the Republic of Bulgaria as well as the additional requirements for occupying academic positions specified in the IGIC Rules. According to the documents submitted by the applicant, Dr. Bachvarova-Nedelcheva has 1 042 points, which is twice the required minimum stated criteria of 500 points by groups of indicators A-E. She also has 120 points from the group of indicators G being the additional requirements for the applicant's scientific work accepted by IGIC. Obviously, the candidate meets all of the required criteria for the above-mentioned academic position.

The publications which Dr. Bachvarova-Nedelcheva has submitted are divided into two groups: in habilitation and out of habilitation. In both groups of indicators, the articles were published in reputable international magazines with **Q1** – Journal of Non-Crystalline Solids, Optical Materials, Journal of Materials Science; with **Q2** – Journal of Sol-Gel Science and Technology, Physics and Chemistry of Glasses: European Journal of Glass Science and Technology, Central European Journal of Chemistry, etc. The first group includes works on the main subject of the applicant, namely synthesis, structure and properties of selenite glasses (group of indicators B, indicator 4, publications from 1 to 10). This subject is a natural extension of the subject from her PhD, which was conducted under the supervision of the late Prof. DSc Yanko. The collaboration with Professor Dimitriev definitely played a positive role in the thematic orientation of the candidate's research.

The second group publications includes those devoted mainly to the sol - gel method (group of indicators G, indicator 7) and concerns the obtaining of TiO_2 nanosized powders containing classical (B_2O_3), intermediate (ZnO) and non-traditional network formers (TiO_2, TeO_2, SeO_2) in two- and three-component systems (papers from 1 to 18).

The candidate has skillfully developed both topics, but over the last few years there has been more emphasis on her publishing in the sol - gel topic, which is also more practical since many of the synthesized nanocomposite powders have been subjected to photocatalytic and antibacterial tests.

Bachvarova-Nedelcheva's contributions to the first subject are generally expressed in defining the areas of glass formation in different three-component selenite systems: Ag_2O-SeO_2-MoO_3, CuO-SeO_2-MoO_3, Ag_2O-SeO_2-B_2O_3 и CuO-SeO_2-B_2O_3 and acquiring novel results on the

phase formation in them as well as in multi-component systems containing SeO_2 and TeO_2. Structural models have been developed which may be useful in the synthesis of more complex amorphous and glass crystalline materials containing SeO_2. The applicant's contributions to post - habilitation papers are related to the study of the preparation conditions of nanosized powders containing TiO_2 by several sol - gel techniques (hydrolytic, non - hydrolytic and combustion sol - gel) by combining different compatible network formers. Original results on the structure and properties of the synthesized composite powders were acquired. A summary could be made concluding that the results in both scientific fields contribute substantially to elucidating the "composition - synthesis - structure - property" relationship, which reveals new possibilities for obtaining multi - component compositions with potential optical, photocatalytic and antibacterial applications.

It is also impressive that the candidate has formed guidelines for its future development on both topics, which clearly reveals not only her vision of developing the scientific directions and solving problems faced by them, but also her desire for future scientific development and growth at the Institute of General and Inorganic Chemistry of the Bulgarian Academy of Sciences.

It is noteworthy that the candidate actively participates in national and international scientific forums. The studies of Dr. Bachvarova-Nedelcheva have received good public recognition and in the materials for the competition she has presented a list of 206 citations of her works by other authors noted at the date of preparation of the documents. Her personal Hirsch Index (H) according to Scopus is 9. These values exceed the requirements of the above-mentioned Regulations of at least 60 points and are in line with the best traditions of IGIC.

The submitted dividing protocols for the contribution of Bachvarova-Nedelcheva and colleagues from other institutes of the Bulgarian Academy of Sciences (Dr. St. Yordanov and Assoc. Prof. Dr. V. Ganev) about joint research in several articles in the competition expressed responsibility and ethics in the scientific team.

It is worth noting that Bachvarova-Nedelcheva has participated in 10 projects and that she was a scientific consultant for 4 graduates and 3 PhD students, which illustrates her organizational skills and abilities to combine research on different topics, as well as teamwork. This presents her as a dynamic scientist and convincing candidate for winning the "Associate professor" competition at the “High Temperature Oxide Systems” laboratory at Institute of General and Inorganic Chemistry – BAS.

In conclusion, I believe that Dr. Bachvarova-Nedelcheva fully meets the requirements for acquiring the academic position and in view of this, I give my positive estimation and I recommend to be appointed in the academic position of "Associate Professor" in 4.2 "Chemical Sciences" at Institute of General and Inorganic Chemistry – BAS.

26.07.2019 …….....

Sofia /Assoc. Prof. Dr. A. Stoyanova-Ivanova/