

Statement

by Prof. Konstantin Todorov Balashev,
Department of Physical Chemistry,
Faculty of Physics and Chemistry, Sofia University "St. Kliment Ohridski "
for a contest for academic position of "Associate Professor"
professional field 4.2. Chemical sciences (Inorganic chemistry)
announced at State Gazette, no. 21. of 2020, p. 90.

Assistant Professor Dr. Martin Petrov Tsvetkov, is the sole candidate, who has presented all the documents lawfully required for the announced associate professor's contest at the Faculty of Chemistry and Pharmacy of Sofia University " St. Kliment Ohridski",

Dr. Tsvetkov graduated in 2010 and then in 2011, the Faculty of Chemistry and Pharmacy at Sofia University "St. Kliment Ohridski", thus consecutively acquiring bachelor's and master's degrees in Nuclear Chemistry. In 2016 he successfully defended a dissertation titled "Mixed oxides of the type MFe_2O_4 (M = Zn (II), Ni (II), Co (II)) - synthesis, characterization, catalytic properties" and was awarded the PhD degree in Inorganic Chemistry. From 2017 until now, he has held a position of Chief Assistant Professor at the Faculty of Chemistry and Pharmacy at Sofia University.

As required by the contest rules, Dr. Tsvetkov has presented a list of 20 scientific papers including a habilitation thesis. All of his articles were published in referenced international journals, some of which are prestigious in the field of materials science and catalysis, e.g. *Journal of Materials Science, Materials letters, Catalysis Communications* and *Catalysis today*. His articles are distributed by quartiles as follows: in Q1 there are 5 articles, in Q2 - 5 articles, in Q3- 3 articles and in Q4- 5 articles. One article has SJR 0.22. The list of all 23 candidate's scientific publications is also presented in the documentation for the contest.

The main scientific contributions of Dr. Tsvetkov are within the field of inorganic material science, heterogeneous catalysis and crystallography. The publications he has submitted for the contest have framed his results obtained within two main scientific areas: the first one, synthesis,

characterization and (photo)catalytic properties of transition metal oxides, and second one structural characterization of lanthanide ion modified materials. The majority of the candidate's articles, i.e. № 1-11, 14, 15, 17-19, belong to the first of the above-mentioned scientific areas, in which the subject of his studies were the photocatalytic properties of transition metal oxides and other catalytic processes. The second area of Dr. Tsvetkov's research includes publications №№ 12, 13 and 16, and those could also be considered as his contributions within the field of crystallography. It is important to note that the candidate's research was conducted in successful collaboration with two leading laboratories from the Joint Institute for Nuclear Research in Dubna, Russia, in the Laboratory of Neutron Physics and the Laboratory of Nuclear Problems, respectively.

The applicant has presented a habilitation thesis which considers some contemporary scientific and applied problems concerning the removal of organic pollutants in water. The thesis is written lucidly and the author's conclusions are argumentative. It presents an improved oxidation processes that lead to formation of hydroxyl radicals, which further interact with various components presented in the studied systems, thus mineralizing the organic micro-pollutants. In the thesis are proposed approaches for improving the (photo)catalytic process of formation of hydroxyl radicals, e.g. by generating defects in the crystal structure by applying gamma irradiation, and also by combining some embedded in nanocomposites catalysts with enhanced catalytic properties. Finally, some future research plans of the applicant are proposed, i.e. the design and synthesis of new catalytic systems, the expansion of the range of studied micro-pollutants, as well as the involvement of a new method for the determination of total organic carbon (TOC). The overall impression is that the obtained results are genuine and the conclusions are firm and convincing.

Dr. Tsvetkov has chosen a direction for his research that lays in an important scientific field with broad area of applications thus paving the path for his future scientific and career development. He has already presented his results in a large number of international scientific forums both at home and abroad. It is difficult to find critical remarks about his works.

It is also important to note that a large part of Dr. Tsvetkov's research was conducted within the framework of successfully completed research projects in which he was either project leader (4 projects) or participant (3 projects). In addition to the candidate's scientific activity, his teaching engagement in lecture courses, fully supports his intention to be promoted to associate professor.

Dr. Tsvetkov's research has already been noticed by the scientific community. His papers were cited 80 times totally, according to SCOPUS and the Web of Science (excluding self-citations for all authors), and his article №7, which was published in *Materials chemistry and physics*, has been cited 22 times.

The references № 12 and 15, presented in candidate's documentation show that the applicant has fulfilled all the criteria from the five groups concerning the scientific and teaching activities, which are compulsory for holding the academic position of "associate professor".

In conclusion, I solemnly declare, that the scientific, teaching and administrative activities of Dr. Tsvetkov fully comply with the requirements of the Law and the Regulations on the terms and conditions for acquiring scientific degrees and holding academic positions at Sofia University "St. Kliment Ohridski". Therefore, I suggest to the Honorable Jury to propose to the Faculty Council of Faculty of Chemistry and Pharmacy to promote Chief Assistant Professor Dr. Martin Petrov Tsvetkov *to Associate Professor* in the professional field 4.2. Chemical sciences (Inorganic chemistry).

Sofia, August 8th, 2020

Prof. Konstantin Balashev, PhD, DSc