

OPINION

Prof. Dr. Georgi N. Vayssilov

Faculty of Chemistry and Pharmacy of Sofia University

on the competition for Associate Professor in 4.2 Chemical Sciences (chemical kinetics and catalysis) for the needs of laboratory "Reactivity of solid surfaces" at the Institute of General and Inorganic Chemistry, BAS, announced in the State Gazette. 36 / 3.05.2019 with candidate Chief Prof. Nikola Lyudmilov Drenchev, PhD

Only one candidate participates in the docent competition - Ch. Assistant Professor Nikola Lyudmilov Drenchev, currently working at the Institute of General and Inorganic Chemistry at the Bulgarian Academy of Sciences. He obtained a university degree in chemistry at Sofia University "St. Kl. Ohridski" in 2004 as Master of Chemistry. From 2005 to 2008, he is a full-time doctoral student at the Faculty of Chemistry at Sofia University. In 2009 he defended his doctoral dissertation on the topic "Synthesis and hydrogen-adsorption properties of alloys based on Mg-2Ni" under the guidance of Prof. Tony Spassov. Since 2008 he has been working at the Institute of General and Inorganic Chemistry of the Bulgarian Academy of Sciences, where since 2009 he has been appointed as an Assistant Professor. In 2012 and 2013 he specialized for a year and a half as a Senior Researcher at the University of Pardubice, Czech Republic.

The scientific contributions of Ch. Prof. Dr. Drenchev, presented within the competition, have been published in a total of 18 scientific publications. Five of the publications have been submitted for habilitation work on the subject "IR spectroscopic characterization of the valence and coordination state of metal cations in zeolites, oxide catalysts and metal-organic structures with probe molecules and their isotope analogues". The other 13 publications are presented as scientific publications in journals that are referenced and indexed in world-renowned databases of scientific information (Web of Science and / or Scopus), outside of habilitation work. In addition, the candidate has 11 other publications in national or international journals and books. The scientific papers he has applied for in this competition include publications in specialized scientific journals in the field of his research such as Appl. Catal B, J. Phys. Chem. C, Chem. Commun., Phys. Chem. Chem. Phys., etc. According to the provided information, the publications of Ch. Dr. Drenchev has been cited 166 times.

The main part of the scientific research of Ch. Prof. Dr. Drenchev presented for this competition is related to the application of infrared spectroscopy to identify and study the structure and properties of active centers on solid surfaces or in porous materials. Particularly useful in these studies is the use of isotope vibration shift, which provides additional opportunities to differentiate and identify individual active centers. This approach has been used both in the study of hydroxyl groups and in the characterization of metal ions by adsorption of molecule probes with different isotopes of the atoms in them. Particularly interesting are the systematic studies of various metal-organic frameworks using isotope-labeled probe molecules. The presented studies are original and are related to the topic of the competition.

The new experimental results obtained and their interpretation enrich scientific knowledge by clarifying the structure and properties of active sites on catalytic surfaces and adsorbents and enable their targeted modification and potential application.

I know the candidate personally from his many years of work in the group of Prof. Hadjiivanov, his scientific publications and presentations in scientific forums. My personal impressions of him are very good.

In conclusion, Sec. Assistant Professor Nikola Drenchev meets all the requirements of the Law for the development of the academic staff for occupation of the academic position of Associate Professor, the specific requirements for the Chemical Sciences defined in the Regulations for its application, as well as the requirements of the Institute of General and Inorganic Chemistry. He is a specialist in the field of spectroscopic methods for the study of active centers of surfaces and porous materials. On the basis of the above, I recommend Ch. Assistant Professor Nikola Drenchev to be elected as Associate Professor at the Institute of General and Inorganic Chemistry, BAS.

25.08.2019

Prof. Georgi N. Vayssilov