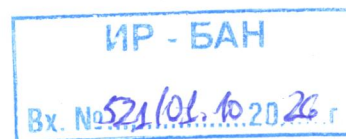


## REVIEW



in relation to awarding the academic position of "Associate Professor"  
in professional field 5.2. Electrical Engineering, Electronics and Automatics,  
scientific subject "Elements and Devices of Automation and Computing Technology",  
promulgated in State Gazette, issue 51 dated June 5, 2026 for the needs of the "Sensors  
and Measurement Technologies in Robotics and Mechatronics" section at Institute of Ro-  
botics of Bulgarian Academy of Sciences (BAS)

Applicant: Svetoslav Atanasov Noykov, PhD, Assistant Professor

Member of the Scientific Jury: Corresponding member of BAS Georgy Slavchev Mihov,  
DSc, Professor

### 1. Overall characterization and biography information

Svetoslav Atanasov Noykov was born on September 2, 1965, in Veliko Tarnovo. He completed his higher education in 1992, obtaining a Master's degree from the Tula Polytechnic Institute in town Tula, Russia, specializing in "Automatic Control Systems" – a qualification equated by the Ministry of Education and Science to "Automation and Systems Engineering". From 1999 to 2004, he was a PhD student at the Institute of Control and System Research of BAS. He defended a PhD thesis titled "Hardware and Software Tools for Processing Sensor Information During Environmental Exploration Using a Class of Mobile Robots". Pursuant to Protocol No. 9 dated June 7, 2004, Commission No. 5 of the Higher Attestation Commission awarded him the educational and scientific degree of "Philosophy Doctor" in the scientific specialty 02.21.02 "Elements and Devices of Automation and Computing Technology".

Since May 15, 1995, Svetoslav Noykov has worked for the Institute of System Engineering and Robotics of BAS, successively awarding the positions of Research Assistant (Grades I–III) until 2009. Research Associate Professor (Automation and Computing Elements and Devices) – until 2010; and Professor (Electrical Engineering, Electronics, and Automation – Magnetic Field Sensors and Sensing Devices) – until 2017. Concurrently, from 1998 to 2018, he worked as a Service Engineer for medical electronic equipment (under supplementary employment contracts and non-employment service agreements) at the companies IVD Bulgaria Ltd., Sofbiolife-Biomedica Ltd. and Bioagrogen Ltd., Bioagrogen Eco Ltd. He left the Bulgarian Academy of Sciences and, from 2018 to 2025, worked as an Instrumentation and Control Engineer for Ecoprogress International Ltd. On November 24, 2025, he returned to BAS as an Electronics Engineer at the Institute of Robotics, and since late 2025, PhD Svetoslav Noykov awarded the position of Head Assistant Professor.

### 2. General description of the presented documents

The applicant for the academic position of Associate Professor, PhD Noykov, has submitted all necessary documents in accordance with the Internal Rules for the Development of the Academic Staff at the Institute of Robotics and the requirements of National Center for Information and Documentation (NaCID).

The evidence regarding the fulfillment of the minimum requirements for the academic position of Associate Professor comprises a total of 37 publications (including 10 equivalents to a monograph) and 22 citations, and corresponds to the following number of points:

**Indicator A – 50 points** (min. 50). Diploma for the educational and scientific degree of "Philosophy Doctor", No. 29287 dated August 20, 2004, issued by the Higher Attestation

**Indicator B – 169 points** (min. 100). 10 publications equivalent to a monograph are presented, these are refereed and indexed in world-renowned scientific databases (Web of Science, Scopus). All publications are co-authored, PhD Noykov is the first author in one of them. Four publications are in Q1 (Web of Science) – [B4-1, -7, -8, -10], and one is in Q4 (Web of Science) – [B4-2].

**Indicator Г – 259.7 points** (min. 200). 27 scientific publications are presented. Of these, 9 (under Indicator Г7) are refereed and indexed in the world-renowned scientific databases Web of Science and Scopus (100 pts). One publication is in Q1 (Web of Science) – [Г7-5]. Under Indicator Г8, 18 publications in edited collective volumes are presented (120.5 pts). One publication is single-authored [Г7-1], while the others are co-authored, PhD Noykov is the first author in 7 of them [Г7-2, -9], [Г8-2, -8, -10, -11, -12].

**Indicator E – 320 points** (min. 0). Although this indicator is not required for the academic position of "Associate Professor", the applicant has presented eight recognized co-authored patents; in two of these [E26-6, -8], the applicant is the first co-author.

### **3. General characteristics of the applicant's research and applied-science activities**

PhD Svetoslav Noykov's primary research and applied work lies in the fields of electronics, sensor technology, robotics, and mechatronics, focusing on the development of circuit, software, and hybrid solutions for electronic and mechatronic devices and systems.

Within the scope of the competition, the applicant's work centers on sensors for measuring magnetic field components – specifically 2D and 3D magnetometers and combined sensors – as well as circuit-based and algorithmic systems for mechatronics and setups for investigating magnetic materials.

PhD Noykov's active research is evidenced by his participation in 29 projects: 6 international; 6 national and 17 institutional. He has served as the principal investigator for three institutional projects and as the main coordinator for one international project.

A notable achievement in the applicant's applied work is his collaborative development of the new mobile robot LAMOR, featuring an information-control system designed for intelligent operation and precise trajectory control.

Svetoslav Noykov's educational and research activities include serving on PhD admission and specialty examination committees, as well as supervising a PhD student who successfully defended their thesis.

### **4. Major applied scientific contributions**

The applicant, PhD Noykov, has grouped the contributions associated with the publications submitted for the "Associate Professor" competition into two parts.

**4.1. Contributions to articles equivalent to a habilitation thesis** – they can be defined as the creation of new methods, designs, and technologies.

– A method was proposed for measuring magnetic field components using a single sensing area at different time intervals. Based on this, a 3D Hall-effect magnetometer operating on a scanning principle was developed [B4-1].

– A class of scanning 2D Hall-effect magnetometers was created, achieving high spatial

– A 3D magnetometer was created that employs the principle of sequential measurement of all three magnetic field vector components; it incorporates a 6-contact Hall-effect sensing element and an interface electronic circuit for extracting and processing the sensor data [B4-3, -7].

– A multi-sensor was created for temperature measurement and the sequential measurement of the three orthogonal magnetic field components based on the Hall effect [B4-6, -8]. A suitable interface electronic circuit was developed to implement the sensor architectures required for the sequential measurement of the three orthogonal magnetic field components. 5. A 2D magnetometer was created for the simultaneous measurement of two magnetic field components, employing an original concept of interconnecting two identical three-contact (3C) Hall micro-sensors with in-plane magnetic sensitivity; this achieved high measurement accuracy and offset compensation for both measurement channels [B4-5].

– A high-resolution 2D magnetometer with a maximally simplified design was created, based on a 4-contact micro-sensor that measures two orthogonal magnetic field components using a shared transduction zone. An interface electronic circuit was developed to provide output signals with compensated offset [B4-9, -10].

**4.2. Contributions in the articles for the competition of Associate Professor (outside the equivalent articles of habilitation thesis).** To a certain extent, the contributions overlap with and complement those found in publications equivalent to a habilitation thesis. They can be characterized as the enhancement of existing schemes, devices, and systems with new qualities and parameters.

– A functional version of a local control system for a three-wheeled differential-drive mobile robot has been created [Г8-1, -2, -3, -4, -5, -6], comprising a reflex behavior subsystem—a "reflex module"—that enables the robot to react to unexpected situations while navigating its operating environment. The system has been implemented on the LAMOR laboratory mobile robot developed at IICT-BAS.

– A motion control algorithm has been developed for a mobile robot designed to explore environments and unknown objects, utilizing data from a scanning ultrasonic rangefinder and tactile sensors. The algorithm guides the robot along a pre-planned path, while a suitable reflex behavior algorithm is executed upon the detection of an unexpected obstacle [Г8-2, -8, -9].

– Modules have been developed, constructed, and experimentally tested for a Hall-sensor-based setup designed to investigate magnetic materials [Г7-1, -2; E26-2]:

a) an electronic interface unit designed to provide an adjustable DC power supply and an interface for output signals;

b) a sensor unit designed for analyzing samples in liquid and granular states.

– A circuit design has been proposed for the power supply and signal conditioning of a three-contact Hall sensor variant, incorporating a method for dynamic offset and noise compensation [Г7-4]. 11. Developed electronic interface circuitry for ring-structure Hall-effect microsensors, designed to control microsensor operation and to extract and subsequently process the generated signals [Г8-18, E26-8].

Robotics at the BAS in 2015, 2016, and 2017. In 2017, the research team, including PhD Noykov, was also honored with a certificate for a project funded by the Bulgarian National Science Fund (Ministry of Education and Science) that achieved the maximum possible score.

All 22 cited publications were referenced by foreign authors in scientific journals indexed in the globally renowned databases Web of Science and Scopus; consequently, it can be stated that the applicant, PhD Noykov, is recognized within the scientific community.

## **6. Remarks and recommendations**

I have no critical remarks regarding the applicant. The documentation has been prepared with precision and in an organized manner. Verifiable evidence regarding PhD Svetoslav Noykov's achievements is provided. The quantitative criteria for the academic position of "Associate Professor" at the Institute of Robotics of the Bulgarian Academy of Sciences of BAS have been exceeded.

I do have certain observations regarding the formulation of the applicant's contributions; some are overly verbose and lack an evaluative component – specifically, the advantages for particular applications compared to existing solutions.

## **7. Personal impressions and opinion of the reviewer**

I do not know PhD Svetoslav Noykov personally. I have not co-authored publications with the applicant, nor am I a "related person" to him within the meaning of § 1, Item 5 of the Supplementary Provisions of the Law on the Development of the Academic Staff in the Republic of Bulgaria. I have found no evidence of plagiarism in PhD Noykov's scientific works.

Based on a review of his scientific and applied activities and his publications, I perceive PhD Noykov as an erudite researcher who demonstrates profound knowledge and conducts precise research in the fields of sensor technology, robotics, and mechatronics.

## **CONCLUSION**

The submitted documents comply with the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its implementation, and the Internal Rules for the Development of the Academic Staff of the Institute of Robotics at the Bulgarian Academy of Sciences. Based on a review of the submitted scientific works, their significance, and the contributions contained therein, I consider it justified to propose Head Assistant Professor, PhD Svetoslav Atanasov Noykov for the academic position of "Associate Professor" in professional field 5.2 "Electrical Engineering, Electronics, and Automation", specialty "Elements and Devices of Automation and Computing Technology".

September 15, 2026

REVIEWER:

/Corr. Mem. of BAS Prof. DSc Eng. G. Mihov/