# REPORT

to occupy the academic position:

| ''Professor'' | X |
|---|---|
| ''Associate Professor'' | |
| | one of the academic positions indicated shall be marked with the sign "X" |

**Candidates to occupy the position:**

| 1 | Associate Professor | PhD | Andriana | Risk | Surleva | UCTM - Sofia |
|---|---|---|---|---|---|---|
| № | academic position | scientific degree | name | middle name | last name | workplace |

**Scientific area**:

| 4. | Natural sciences, mathematics and informatics |
|---|---|
| code | name |

**Professional area**:

| 4.2. | Chemical sciences |
|---|---|
| code | name |

**Scientific specialty**:

| 4.2. Chemical sciences (Analytical chemistry) |
|---|

**The competition has been announced:**

| 64 | 05.08.2025 | Analytical Chemistry | Chemical Technologies |
|---|---|---|---|
| in SG issue | date | for the needs of the Department | Faculty |

**The report was written by**:

| academic position | scientific degree | name | middle name | last name | workplace |
|---|---|---|---|---|---|
| Professor | PhD | Albena | Kirilova | Detcheva-Tchakarova | IGIC-BAS |

## 1. Report for the candidate:

| academic position | scientific degree | name | middle name | last name |
|---|---|---|---|---|
| Associate Professor | PhD | Andriana | Risk | Surleva |

## 1.1. Meeting the minimum requirements under the Regulations:

| | | |
|---|---|---|
| A) The candidate meets the minimum requirements | 20 points | X |
| B) The candidate doesn't meet the minimum requirements | 0 points | |
| | | one of the answers given is marked with the sign "X" |

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| It must be filled in if answer B is marked. The publication activity of the candidate is analyzed. The response of the results achieved (quoted) is analyzed. |
| The candidate is co-author of 75 scientific publications, 35 of which are included in the present competition for the position "Professor". Most of the publications are published in specialized international journals with Impact Factor (13) or in refereed specialized journals, which are indexed with the SJR-index (20). Publications according to index 4: altogether **160 points**. Publications according to indexes 5-10: altogether **319 points**. |
| The published results have got international impact, proof for it are the numerous citations – altogether 138 citations on the papers, included in the present competition – **276 points**. Concerning indicators 12-20 (supervising of PhD-students, leadership and participation in projects, elaboration of university educational manuals): altogether **294 points**. |

## 1.2. Relevance of scientific and / or applied research:

| | | |
|---|---|---|
| A) The research is relevant. Part of the research is pioneering (no results are known on the topic by other authors) | 8 points | |
| B) Research is relevant. Results from other authors are known for each of the topics and / or applications studied. | 6 points | X |

| | | |
|---|---|---|
| C) Most of the research is relevant, but also some results are presented that have no scientific and / or applied value | 4 points | |
| D) The smaller part of the research is relevant | 2 points | |
| E) Research is not relevant | 0 points | |
| | | one of the answers given is marked with the sign "X" |

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| The evaluation of the relevance of the research must be substantiated. |
| The investigations in the field of Analytical chemistry concern completely relevant fields and are mainly object-oriented with the aim of expanding the analytical information obtained from various methods of chemical analysis, and its application for the development of new technologies or optimization of existing ones. The research is aimed at developing, optimizing and validating/verifying methods for chemical analysis of environmental objects, samples from industrial production and other artifacts of human activity. |

### 1.3. Objectives of the research:

| | | |
|---|---|---|
| A) Realistic and of scientific and / or applied interest | 8 points | X |
| B) Realistic, but not of scientific and / or applied interest | 4 points | |
| C) Unattainable (unrealistic) | 0 points | |
| | | one of the answers given is marked with the sign "X" |

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| Objectives must be specified. The type of the set objectives must be justified |
| The objectives, classified into **four main directions**, are of both scientific and applied interest, as follows:<br>**1.** Development of a protocol for chemical analysis and characterization of industrial wastes with the aim of their valorization and reduction of the ecological footprint;<br>**2.** Development, optimization and validation/verification of methods for chemical analysis of environmental objects with the aim of obtaining up-to-date data for environmental risk assessment;<br>**3.** Characterization of the analytical behavior of methods for chemical analysis of agricultural soils with the aim of determining plant-available forms of nutritional components;<br>**4.** Development, optimization and verification/validation of analytical methods and their application for the study of artefacts of human activity. |

## 1.4. Candidate research contributions:

| | | |
|---|---|---|
| A) With lasting scientific and / or applied response, they form the basis for new research and applications | 20 points | |
| B) They are of significant scientific and / or applied interest, complete and / or summarize previous research | 16 points | X |
| C) They are of scientific and / or applied interest | 12 points | |
| D) Lack of significant contributions | 8 points | |
| E) Lack of contributions | 0 points | |
| | | one of the answers given is marked with the sign "X" |

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| Contributions must be specified. The type of results achieved must be justified. |
| The scientific works of the candidate exhibit original scientific and practical contributions with an international impact as the major part of them are published in journals and proceedings by international academic publishers, as follows:<br>**Direction 1:** Materials from three copper mine tailings dumps and two tailings from coal-combustion thermal power plants are characterized as precursors for the production of geopolymers with a low $CO_2$ footprint; original data on tailing materials are obtained, which can be used both for the production of geopolymer materials and for environmental assessment; for the first time, an assessment of the mobility and bioavailability of heavy metals and other potentially toxic components in geopolymer materials obtained from Bulgarian sources is made; geopolymer materials with a low carbon footprint are obtained from precursors: copper mine tailing and fly ash from coal combustion in Bulgaria, suitable for the production of classic and 3D-printed construction materials.<br>**Direction 2:** An analytical protocol for assessing the condition of a tailings pond from polymetallic ore mining has been developed, which combines various chemical analysis methods and biological tests; new data have been obtained on the composition and current state of the tailings material, soils and waters from the Tarnica-Suceava tailings pond area, Romania; new data have been obtained on the double isotope dilution method for the mass spectrometric determination of mercury in aquatic organisms, which are of interest to metrological institutes in the studies of a primary method of analysis; an ion-chromatographic method for the determination of standard anions and pollutants in natural waters has been validated.<br>**Direction 3:** A comparative study of the effectiveness and uncertainty of the result of the determination of plant-available K in Bulgarian agricultural soils after extraction by 5 methods followed by AES quantification of the analyte is performed; the experimental conditions were optimized and the analytical characteristics of the spectrophotometric determination of phosphate ions by the molybdenum blue method in soil extract in the presence of acetate-lactate buffer reagent is studied; for the first time, a correlation study of the acetate-lactate extraction method and Mehlich 1 for the determination of plant-available K and P in Bulgarian agricultural soils is performed; a modified version of the |

turbidimetric method for the determination of water-soluble sulfates in soil after leaching with CaCl$_2$ reagent is proposed.

**Direction 4:** The influence of operating parameters on SEM/EDS method as well as validation of SEM/EDS for identification of elemental composition of inorganic gunshot residue from incidents in the Republic of Kosovo is performed for the first time; the analytical control in industrial production is improved; the technologies for recycling and waste valorization are improved.

Therefore the contributions of the candidate may be specified as **"*Novelty in science*"** and **"*Development of existing knowledge*".**

## 1.5. Participation of the candidate in the achievement of the presented results:

| | | |
|---|---|---|
| A) The candidate has at least an equal participation in the submitted papers | 8 points | X |
| B) The candidate has at least an equal participation in most of the submitted papers | 7 points | |
| C) The candidate has a secondary participation in most of the submitted papers | 4 points | |
| D) The candidate participation is unnoticeable | 0 points | |
| | | one of the answers given is marked with the sign "X" |

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| Critical notes must be provided if one of the items C or D is marked. |
| The scientific contribution of the candidate **Assoc. Prof. Dr. Andriana Surleva** in her scientific works is highly appreciated because her complete scientific production passed through the precise reference process in high-indexed journals. The published results have got international impact, proof for it are the numerous citations |

## 1.6 Pedagogical activity:

| | | |
|---|---|---|
| A) The candidate has effective and sufficient pedagogical activity at the university. The textbooks issued are modern and useful (they meet the requirements of the Regulations). The work with undergraduate and doctoral students is at a high professional level. | 8 points | X |
| B) The candidate has sufficient pedagogical activity at the university. The textbooks issued satisfy the requirements of the Regulations. | 6 points | |

| C) The pedagogical activity and / or textbooks issued are insufficient (do not meet the requirements of the Regulations) | 0 points | |
|---|---|---|
| | | one of the answers given is marked with the sign "X" |

| Critical notes must be provided if one of the items B or C is marked. |
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| |

## 1.7. Critical notes:

| A) Lack of critical notes | 8 points | X |
|---|---|---|
| B) Critical notes of a technical nature | 7 points | |
| C) Critical notes that would partially improve the results achieved in a small part of the research | 5 points | |
| D) Critical notes that would partially improve the results achieved in most of the research | 3 points | |
| E) Significant critical notes | 0 points | |
| | | one of the answers given is marked with the sign "X" |

| Critical notes must be provided if one of the answers C, D or E is marked. |
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| No critical notes concerning the scientific and professional qualification of the candidate Assoc. Prof. Dr. Andriana Surleva. |

## 1.8. Conclusion

| A) The evaluation of the candidate's activity is **POSITIVE** | This evaluation is assigned to a total number of at least 50 points | X |
|---|---|---|

| B) The evaluation of the candidate's activity is **NEGATIVE** | This evaluation is assigned to a total number below 50 points | |
|---|---|---|
| | | one of the answers given is marked with the sign "X" |

| To be filled in if requested by the member of the scientific jury |
|---|
| **Associate Professor Dr. Andriana Surleva's** research area is in an up-to-date and prospective scientific field related to the developing, optimizing and validating/verifying methods for chemical analysis of environmental objects, samples from industrial production and other artifacts of human activity. Judging by the broad scientific and organizational activities of Assoc. Prof. Dr. Andriana Surleva, I believe that she has the skills and capacity to lead a scientific team, which is necessary for the position she is applying for. The high quality of the presented scientific works, the active project, pedagogical and academic activities of Assoc. Prof. Dr. Andriana Surleva prove the complete adequacy and exceeding, some of them even more than twice, the national requirements for occupying the academic position "Professor". All this gives me reason to propose to the respected Scientific Jury to vote for **Associate Professor Dr. Andriana Risk Surleva** to occupy the position **"Professor"** in the present competition. |

**Candidate ranking (in case of more than one candidate who has received a positive evaluation to occupy the academic position):**

Based on the assigned points, the candidates who have received a **positive** evaluation are ranked as follows:

| 1 | Associate Professor | PhD | Andriana | Risk | Surleva | **74** |
|---|---|---|---|---|---|---|
| place | academic position | scientific degree | name | middle name | last name | points |
| 2 | | | | | | |
| place | academic position | scientific degree | name | middle name | last name | points |
| 3 | | | | | | |
| place | academic position | scientific degree | name | middle name | last name | points |

| | | The report was written by: | |
|---|---|---|---|
| 20.11.2025 | **Prof. Dr. Albena Detcheva-Tchakarova** | | signature |