

Evaluation report

**on a thesis for the educational and scientific degree PhD
in professional field of Physical science (4.1),
on defense procedure at the Faculty of Physics (FzF)
of Sofia University "St. Kliment Ohridski" (Sofia University)**

The review was prepared by: Assoc. prof. Ekaterina Ivanova Iordanova, Institute of Solid State Physics - BAS, as a member of the scientific jury according to Order No ПД 38-448/25.07.2022 of the Rector of Sofia University

Topic of the thesis: Vision screening in school-age children

Author of the thesis: Mila Tonieva Dragomirova

I. General description of the submitted materials

1. Information about the submitted documents

The candidate Mila Tonieva Dragomirova has submitted a thesis and an Abstract, a CV, a copy of a diploma, a copy of published scientific papers, as well as the mandatory tables for the Faculty of Physics taken from the Regulations on the Conditions and Order for Acquiring Scientific Degrees and Occupying Academic Positions at St. Kliment Ohridski Sofia University.

The submitted documents by the candidate meet the requirements of the the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria and the Regulations for its Regulations, as well as the Regulations on the Conditions and Order for Acquiring Scientific Degrees and Occupying Academic Positions at Sofia University.

2. Details of the applicant

The candidate holds two master's degrees, respectively:

- (i) Master's degree "Optometry", Sofia University "St. Kliment Ohridski", Faculty of Physics, Department of "Optics and Spectroscopy", Sofia
- (ii) Master of Engineering, Technical University, Sofia.

From 2016 to the present, she works as an assistant and physicist at Sofia University "St. Kliment Ohridski", Faculty of Physics, Department of "Optics and Spectroscopy". From 2012 to the present, she also holds the positions of optometrist, manager, owner of the company Aversis OOD, Prooptika since 2012. She actively participates in the activities of international commissions specialized in the field of optometry, as well as leading the Bulgarian Union of Optometrists since 2014.

3. General characteristics of the candidate's scientific achievements

The candidate's scientific achievements are in the field of optometry with a specific focus on the screening of children's vision at school age and the importance of detecting unidentified vision disorders providing the opportunity to apply early therapy.

The dissertation is laid out in 124 pages and consists of 6 chapters and 115 cited sources.

The first chapter presents an overview of the achievements in the field to date. The historical development of vision screening in children on a global and national scale is outlined. The main objectives of the dissertation are presented in a justified and motivated manner.

The second chapter presents in detail the developed methodology for screening and the corresponding requirements and circumstances used in the proposed tests and protocols for reflecting and analyzing the results.

The third chapter presents the developed methodology used to improve the practical training of students in the field of optometry, including stages of preliminary familiarization with the screening methodology, practical work in the field, analysis and conclusions from the practical cases that have arisen.

In the fourth and fifth chapters, specific cases based on research carried out on the territory of Bulgaria are considered. The prevalence of myopia, the identified risk factors and the existing health coverage among school-age children in Bulgaria are affected. Relevant results and analyzes are presented in detail. Screening research is aimed at providing information, statistics and results about the extremely high prevalence of hereditary color vision deficiency and anomalies in the prevalence of visual disorders in children from the studied groups.

Chapter 6 presents a concept for building a knowledge management structure in the pediatric vision health care system.

The scientific achievements in the dissertation offer extremely important and up-to-date information in an area that has not been developed, popularized and applied at a sufficiently high level on a national scale. The scientific achievements provide motivated, detailed and valuable scientific work in the field of children's vision screening, and has the potential to become the basis for building a national info-structure platform to unite and support all stakeholders in the field.

Scientific works:

a) the scientific publications included in the dissertation are a total of 4, such as 1 publication from group I with quartile Q2, 1 article from group III with SJR and two publications in national journals. The presented scientific publications meet the minimum national requirements and, accordingly, the additional requirements of SU "St. Kliment Ohridski" for acquiring the educational and scientific degree "doctor"/PhD in the relevant scientific field and professional direction;

b) the scientific publications included in the dissertation work do not repeat those from previous procedures for acquiring a scientific title;

c) there is no proven plagiarism in the submitted dissertation and abstract.

4. Scientific and scientific-applied achievements

The scientific achievements presented in the dissertation are in the field of optometry with specific, both scientific and scientific-applied contributions of importance in the field of health care related to children's vision on a national level. New and adapted methodologies are presented and developed respectively for (i) screening of children's vision according to specific resource possibilities and needs, supported by developed and demonstrated tests and protocols for collecting and reporting the acquired results with the ultimate goal of improving children's vision health care ; (ii) improvement and updating of existing methods towards practical training and real practice of students in the field of Optometry. The goal is clearly focused on the idea of finding and filling the shortage of qualified and professionally trained personnel in the specific field of primary health care in relation to the factor of children's vision. The results for the prevalence of specific ocular hereditary and acquired health problems in children are presented and analyzed in detail. A number of studies were conducted with selected age and regional groups. The obtained results convincingly demonstrate the importance and contributions, which determine the great potential for the implementation of the developed methods on a national scale and the huge impact they would have on national health care and prevention in the initial stage of children's vision-related diseases. The proposed concept is highly innovative and attractive, again with realistic applied potential and implementation at the national level, for the construction of an info-structural platform for the acquisition and management of knowledge, its adequate distribution to all interested parties, relevant statistical data and all this in the system of children's vision health care.

In view of the above analysis, scientific and scientific-applied contributions based on the proposed developed methods, methods for enriching existing and acquiring new knowledge can be defined and evaluated as achievements with a significant contribution, both in scientific circles and for society and relevant health and regulatory authorities.

The scientific contributions are demonstrated and supported by 4 presented scientific publications with significant contribution of the candidate. The results are presented with 3 oral reports and 1 poster report at international conferences.

5. I have no critical remarks and recommendations on the submitted works.

6. Personal impressions of the candidate

The personal impressions are based on the meetings held during the candidate's online presentations. Based on them, I can express an opinion about a scientist with a pronounced and purposeful scientific activity, supported by motivated and clearly defined plans for future developments and research in the field of expertise presented.

7. Conclusion

After getting acquainted with the presented dissertation, abstract and other materials, and based on the analysis of their significance and contained in them scientific and scientific-applied contributions, I confirm that the scientific achievements meet the requirements of ZRASRB and the Regulations for its application and the relevant Regulations of Sofia University "Kliment Ohridski"

for obtaining the scientific degree “Doctor of Physical Sciences”. The candidate satisfies the minimal national requirements in the professional field and no plagiarism has been established in the dissertation, abstract and scientific papers submitted at the competition.

I give my positive assessment of the Thesis.

II. OVERALL CONCLUSION

Based on the above, I **recommend** the scientific jury to award the degree of "Doctor "/PhD in the professional field 4.1 Physical Sciences **to Mila Tonieva Dragomirova.**

31.08. 2022 г.

Reviewer: Assoc. Prof. Ekaterina Iordanova