

# REVIEW

**by Prof. Dr. Vladimir Ivaylov Petrunov, PhD**

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**Subject:** announcement of a competition in the Official Gazette No. 101/29.11.2024 for the academic position of "Professor" in field 7. Health and Sport, professional field 7.2 Dentistry, specialty Orthodontics at the Faculty of Dentistry, Medical University "Prof. Dr. Paraskev Stoyanov" – city of Varna.

By Order No. P 109-107/29.01.2025 of the Rector of the Medical University "Prof. Dr. Paraskev Stoyanov" - Varna I am appointed as an external member of the scientific jury and by Protocol No. 1 of the same I am appointed as a reviewer. For the competition were submitted documents from one candidate - Assoc. Prof. Dr. Hristina Ivanova Arnautska, PhD from the Department of Orthodontics, Faculty of Dental Medicine, Medical University "Prof. Dr. Paraskev Stoyanov" - Varna. She is a professor at the University of Medical Sciences in Varna. The documents have been submitted in due time and are in compliance with the requirements of the Law on Academic Staff Development of the Republic of Bulgaria, the Regulations for its Implementation and the Regulations for the Development of Academic Staff of Medical University - Varna.

## **Brief biographical data and professional development**

Assoc. Prof. Dr. Hristina Arnautska was born on 21.09.1974. She finished her secondary education in 1993 at the III-th High school of natural sciences and mathematics "Acad. M. Popov", Varna. In 1999 she graduated from the Faculty of Dental Medicine at the Medical University - Sofia with a specialty in Dentistry. In the same year she started working as an orthodontist at Dental Center I EOOD in the section of Orthodontics. In 2006 he acquired a specialty in Orthodontics. In 2008 she was appointed as an assistant professor of orthodontics in the Department of "PDM and Orthodontics" at the Medical Faculty of Dentistry - Varna, where she works with students and postgraduate students. In 2014 she acquired the educational and scientific degree of "Senior Assistant Professor". In 2010 she was enrolled as an independent PhD student at the Department of Orthodontics, FDM - Sofia and in 2013 she successfully defended her dissertation on "Diagnosis and prediction of canine teeth retention". In 2016 she acquired the academic position of "Associate Professor". From 2016 to 2024 she is the Head of the Department of Orthodontics, Faculty of Dental Medicine, Medical University - Varna. In the course of her

professional and personal development, in 2011 Assoc. Prof. Arnautska graduated from her Master's degree in Health Management, MU Varna. Since 1999 she has been working as an orthodontist in her own orthodontic practice.

Assoc. Prof. Arnautska continuously improves her professional skills by participating in over 40 national and international symposia, congresses, forums and training courses after holding the academic position of "Associate Professor". She is a member of the World Federation of Orthodontics, the European Orthodontic Society, SIDO, the Bulgarian Orthodontic Society, the Lingual Orthodontics Club, BZS and BIOMEDE.

Assoc. Prof. Arnautska is fluent in English and Russian. At the time of submission of the documents she has over 24 years of work experience, and over 19 years of experience in the specialty.

### **Research activities**

The candidate submits for participation in the competition a total of 29 scientific works - one monograph and 28 articles reflecting the scientific research activities in the period 2016-2024 after holding the academic degree of "Associate Professor". The publications can be divided into the following categories:

- publications and reports published in scientific journals, refereed and indexed in world-renowned databases - 9 in number

- publications and papers published in non-refereed peer-reviewed journals or published in edited collective volumes -14 in number

- full-text publications in scientific journals and collections, beyond the minimum scientific-metric requirements for the academic position of "professor" - 5 in number.

Indicator	Sole author	First author	Second author	Third and subsequent author	Total
Publications and reports in scientific journals, refereed and indexed in world-renowned databases of scientific information	-	-	6	3	9
Publications and papers in non-refereed peer-reviewed journals or edited collective volumes	-	-	5	9	14
Additional publications, beyond the minimum science metric requirements	-	1	1	3	5

Table 1. Distribution of publications by co-authorship

For 4 of the articles, a reference is provided demonstrating the IF of the journal in which the candidate has published. The total IF of Assoc. Prof. Hristina Arnautska is 3,11.

The presented monographic work is entitled **"Postnatal development of the maxillofacial region and prevention of malocclusions"** and meets the requirements - volume of 223 pages without bibliography and introductory pages, 2 reviews and ISBN number. In it Assoc. Prof. Arnautska is the only author. The monograph systematizes and presents theoretical and practical guidelines for specialists in the field of orthodontics and dentistry, focusing on the importance of early diagnosis, prevention and interceptive treatment of malocclusion. Special attention is given to the mechanism of growth and development of the maxillofacial region, knowledge of which is of paramount importance for adequate prophylaxis. The monograph emphasizes the importance of etiological factors causing dentofacial deformities and develops prophylactic strategies. Interventions to eliminate harmful habits are suggested and the use of prophylactic appliances to maintain proper growth and development of dental arches is demonstrated. Recommendations are made for assessing the growth period and selecting the appropriate time for prophylaxis or treatment. A methodology for interceptive treatment is developed that includes specific approaches to correct early orthodontic malocclusion such as crossbite, open bite, class II and III malocclusion. Detailed treatment recommendations have been developed for various types of occlusal disorders in the stable primary and mixed dentition. Guidelines for a multidisciplinary approach to the treatment of children with clefts or significant maxillofacial asymmetries are proposed. The monograph is richly illustrated with clinical cases from the author's practice.

The presented publications can be grouped according to the subject matter and the issues addressed into the following categories:

1. Aetiology and prevention of orthodontic malocclusion, focusing on the following topics:

- Incidence of dental caries and its relationship to orthodontic malocclusion - 7.1 and 7.4.
- The premature loss of temporary teeth and its relationship to the loss of space in the dental arch - 7.2; 8.10; 8.11 and 8.12
- Oral respiration and its influence on region maxillofacial - 7.5, 7.6, 7.8, 7.9 and 8.6.
- Aetiology, diagnosis and treatment of OSAS - 7.7., 8.8.

2. Investigating the relationship between TMD, CMD problems and occlusion - 7.3; 8.2 and D3

3. Posturology and Dentistry - 8.13, D4 and D5

4. Combined orthodontic surgical treatment and complex treatment of defects in the region maxillofacial - 8.1; 8.3; 8.4; 8.5; 8.7; 8.9 and D1

5. Orthodontic Biomechanics - 8.14 and D2

### **Contributions related to "Aetiology and prevention of orthodontic deformities"**

Publications have emphasized the importance of early childhood caries, premature tooth loss, and oral breathing as major etiologic factors in the development of malocclusion. In particular, the relationship of OSAS and malocclusion is also addressed.

Scientific and theoretical contributions include expanding the understanding of the relationship between these etiologic factors and the prevalence of malocclusion. Emphasis is placed on the timing of the etiologic factor and how this affects the subsequent development of the maxillofacial complex. The classification developed for the degrees of nasal obstruction according to nasal resistance (VR) and flux (Flow) provides new theoretical approaches to systematize and objectively measure obstruction, which could be the basis for further research.

Practical-applied contributions are related to the implementation of preventive measures, the use of space maintainers and innovative behavioural techniques in clinical practice. Innovative methods for diagnosis of OSAS are proposed. The need to establish targeted prevention programs aimed at high-risk children is emphasized. Last but not least, the importance of a multidisciplinary approach, myofunctional therapy and early preventive measures in the treatment of children with nasal breathing difficulties is emphasized.

### **Contributions related to "Exploring the relationship between TMD and CMD problems and occlusion"**

The contributions of these publications are related to proposing new approaches that enrich scientific understanding and clinical practice in the diagnosis and treatment of dysfunctions of the masticatory system and musculoskeletal system. The importance of a comprehensive assessment of the clinical status and the need for an integrated approach to the treatment of temporomandibular and craniofacial dysfunctions, which may lead to better diagnosis and adequate therapeutic strategies, are highlighted. Based on the data collected, these studies expand the understanding of a multidisciplinary approach to these dysfunctions that includes comprehensive treatment.

As a result of the studies, it is recommended that in patients with suspected TMD and CMD, clinical functional examination and structural analysis should precede prosthetic treatment to improve the accuracy of diagnosis and treatment.

### **Contributions related to "The relationship between posturology and malocclusion."**

The research conducted enriches the understanding of the interrelationship between the postural system and dentistry, emphasizing the importance of an integrative approach and the role of the central nervous system in the control of human posture. The impact of posture on health is analyzed, including musculo-articular pathologies and bite problems. The study confirmed the relationship between postural disturbances and occlusal disturbances.

### **Contributions related to “Combined orthodontic-surgical treatment and complex treatment of defects in the maxillofacial area”**

These articles address issues related to the retention of different groups of teeth. The theoretical contribution is that differences in complication rates and opportunities to minimize risks through a more refined choice of appropriate surgical technique are identified, particularly in at-risk patient groups. The incidence of upper and lower canine retreatment as well as success and complication rates in different age groups in the databases were studied.

The practical contribution is related to the demonstration of an orthodontic-surgical approach enabling successful restoration of normal occlusion and function of the maxillofacial system while preventing the risk of more serious complications. Emphasis is placed on the importance of early diagnosis and intervention in case of retention of temporary molars, as well as a combined treatment approach that significantly improves outcomes and prevents serious complications in the future.

Methods for successful restoration of basic functions (speech and masticatory) in patients with combined maxillofacial defects after extended maxillary resections using prosthetic construction are demonstrated. The methods presented for creating prostheses incorporating the use of modern technology provide clinicians with new options for individualized and precise prosthetics that meet the unique needs of each patient.

Another study highlights the importance of using cone-beam computed tomography (CBCT) as the "gold standard" for preoperative maxillary sinus imaging to prevent unexpected intraoperative problems during placement of orthodontic micro-implants and prosthetic implants.

A scientific and practical contribution is the demonstration that Cerabone xenogenic bone material offers the best volume retention over time, making it the preferred choice for maxillary sinus augmentation, with the potential to increase dental implant success.

### **Contributions related to “Orthodontic Biomechanics”**

Biomechanical principles and strategies for medializing the lower molars when closing edentulous spaces in the mandible are addressed, emphasizing the importance of using mini-implants to provide stability and control of tooth movement. Considerations regarding the need for more complex mechanics to achieve the desired results are outlined, thereby minimizing the risks of treatment. The advantages of the segmental technique in the leveling phase of orthodontic treatment are demonstrated.

The scientific activity of Assoc. Prof. Dr. Hristina Arnautska is complemented by citations, participation in congresses, courses and preparation of reviews. The candidate has 12 citations, 7 of them are from foreign authors. She has 57 participations in scientific forums with posters and oral presentations, more than 20 are abroad.

Assoc. Prof. Dr. Hristina Arnautska is a participant in the project № 20011, funded by the Science Fund of MU-Varna, contract № FN-4/26.01.2021 on the

topic "Study of vestibular function with the method of static and dynamic posturography in patients with craniofacial deformities".

Assoc. Prof. Hristina Arnautska has profiles in Google Scholar, ResearchGate, ORCID, ResearcherID and eLibrary.

### **Teaching and administrative activities**

Assoc. Prof. Dr. Hristina Arnautska has 17 years of teaching experience. She is involved in teaching 4th, 5th and 6th year students in Bulgarian and English. She is a member of semester and state examination committees. She is one of the members of the state examination committee for the specialty of Orthodontics. The teaching load of lectures and exercises of Assoc. Prof. Dr. Hristina Arnautska for the last four years is 723 hours.

Assoc. Prof. Dr. Hristina Arnautska has been a scientific supervisor of 6 successfully defended PhD students, who have obtained their PhD degree. She is also currently the supervisor of 1 PhD study which is in progress.

By the time of the submission of the documents, 6 postgraduate students at the Department of Orthodontics at the Faculty of Dentistry – Medical University Varna have acquired the specialty of Orthodontics under the guidance of Assoc. Prof. Dr. Hristina Arnautska. At the present moment there are two more postgraduate students conducting their specialization under her supervision.

The administrative skills of Assoc. Prof. Dr. Hristina Arnautska are evidenced by the fact that since the separation of the Department of Orthodontics from the Department of Prosthetic Dentistry in 2016 until 2024 she has held the position of Head of Department. In these two tenures, she has built and established the Department of Orthodontics as a unit that ensures a good staff microclimate and adequate training of students, postgraduates and PhD students

### **Personal impressions**

I know Assoc. Dr. Hristina Arnautska from her student years at the Faculty of Dental Medicine, Medical University - Sofia. My impressions were strengthened during her PhD, which was carried out in the Department of Orthodontics, of the same university. Without pretending to be exhaustive I will list only some of her most significant positive qualities. She is an outstanding professional in the field of Orthodontics, possesses unquestionable teamwork skills, and even more so, leadership skills to hold management positions.

Group indicators	Minimum requirements	Candidate's score on the indicators
A Doctoral Thesis	50	50
B Dissertation for "Doctor of Sciences"	Optional	-
C Habilitation thesis - monograph	100	100

D Publications and reports	200 ( $\geq 100$ from indicator 7)	242,4 (120.5 of indicator 7)
E Citations	100	175
F Guidance of PhD students, specialty, projects, etc.	100 ( $\geq 80$ points from indicator 14)	245 (160 points from indicator 14)

Table. 2 Performance of science metrics.

### Conclusion

Assoc. Prof. Dr. Hristina Arnautska is an excellent university lecturer and clinician, with unquestionable personal qualities, rich experience both in teaching and in research. She demonstrates a continuous drive for self-improvement and development. Her scientific achievements are distinguished by both theoretical enrichment and a bright practical orientation. It is evident from Table 2 that Assoc. Prof. Dr. Hristina Arnautska meets all the scientific metric requirements.

The overall professional development, scientific research and clinical activity, administrative and organizational skills give me full grounds to express my **POSITIVE** opinion on the award of the academic position "Professor" to Assoc. Prof. Dr. Hristina Arnautska, PhD.

Sofia:  
04.04.2025r.

Signature:  
Prof. Dr. Vladimir Petrunov, PhD

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