

**CURRICULUM VITAE**

Name and Surname: AYSUN BÖKE  
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Email: aysun@balikesir.edu.tr  
Foreign Languages Known (Score and Year): English, B2 Upper Intermediate, 2009  
Area of Expertise: Nuclear physics  
Physics

Degree	Department/Program	University	Year
Doctorate	Physics – PhD	Balıkesir University	2008
Master's Degree	FİZİK (YL) (TEZLİ)	Bursa Uludağ University	1996
Bachelor's Degree	FİZİK BÖLÜMÜ	Bursa Uludağ University	1993

Master's Thesis Title (abstract attached) and Thesis Supervisor(s):

Gamma ışınlarının koherent ve inkoherent saçılma tesir kesitlerinin incelenmesi

Doctoral Thesis/Proficiency Study/Medical Specialization Thesis Title (abstract attached) and Supervisor(s):

Yıldız model programlarının son teorik opaklık verileri ile ve gözlemsel kontrollerle test edilmesi

Position Title	Workplace	Year
Professor Dr.	Balıkesir University	2025-Continues
Associate Professor	Balıkesir University	2020-2025
Assistant Professor	Balıkesir University	2010-2020
Research Assistant	Balıkesir University	1998-2010
Research Assistant	Bursa Uludağ University	1993-1997

Supervised Master's Theses:

1. Monte Carlo Yöntemi ile katılarda foton etkileşimlerinin modellenmesi (2022)
2. Kan dokusundaki foton etkileşim tesir kesitlerinin düşük enerjili fotonlar için hesaplanması (2018)
3. Determination of X-ray attenuation coefficients at low photon energies of tissue equivalent substances of medical importance (Continues)

Roles in Projects:

1. *Monte Carlo Yöntemi ile Katılarda Foton Etkileşimlerinin Modellenmesi*, Project Supported by Higher Education Institutions, Böke A. (Executive), 2019-2022.
  2. *Doku Eşdeğeri Kompleks Moleküler Yapıların Koherent Saçılma Görüntülemesinin Teorik olarak Belirlenmesi.*, TUBITAK Project, Böke A. (Executive), 2019-2021.
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#### Administrative Duties:

1. Phase Coordinator - Balıkesir University (2013 - 2017)
  2. Institutional Coordinator of the Mevlana Exchange Program - Balıkesir University (2013 - 2014)
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#### Awards:

1. Yayın Teşvik (2024)
  2. YAYIN TEŞVİK (2018)
  3. Yayın Teşvik (2014)
  4. Yayın Teşvik (2013)
  5. Yayın Teşvik (2011)
  6. Yayın Teşvik (2007)
  7. FİZİK BÖLÜMÜ BİRİNCİLİĞİ (1993)
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## **PUBLICATIONS**

### **A. Articles published in international peer-reviewed journals:**

- A1. Böke A., "The Theoretical Linear Attenuation and Scattering Coefficients of Polymethyl Methacrylate", *Proceedings of the National Academy of Sciences, India Section A: Physical Sciences*, vol. 96, pp. 139-143, 2026.
- A2. Böke A., "X-ray interaction and computational characterization and analysis of human brain tissue for applications in cancer detection", *Nuclear Engineering and Technology*, vol. 57, no. 103683, pp. 1-6, 2025.
- A3. Böke A., "Calculation of X-ray attenuation coefficients for normal and cancerous breast tissues", *Nuclear Engineering and Technology*, vol. 56, pp. 241-246, 2024.
- A4. Böke A., Gencer D., "The photon interaction cross sections of blood", *Chinese Journal of Physics*, vol. 58, pp. 58-62, 2019.
- A5. Böke A., "The photon interaction cross sections of human cortical bone tissue", *Chinese Journal of Physics*, vol. 55, no. 6, pp. 2165-2172, 2017.
- A6. Böke A., "Linear attenuation coefficients of tissues from 1keV to 150keV", *Radiation Physics and Chemistry*, vol. 102, pp. 49-59, 2014.
- A7. Böke A., "The total incoherent scattering cross sections for low-Z elements", *Radiation Physics and Chemistry*, vol. 83, pp. 34-41, 2013.
- A8. Böke A., "Calculation of the total Rayleigh scattering cross sections of photons in the energy range of 30-50keV for Nb and Mo elements", *Radiation Physics and Chemistry*, vol. 80, no. 5, pp. 609-613, 2011.
- A9. İnklec G., Böke A., Yılmaz O., Budding E., "Effects of Opacity on Stellar Radii and Their Relevance to Observational Data", *Turkish Journal of Physics*, vol. 32, no. 2, pp. 65-77, 2008.
- A10. İnklec G., Böke A., Yılmaz O., Budding E., "The role of stellar envelope convection in gravity-darkening and its relation to observational data", *New Astronomy*, vol. 12, no. 5, pp. 427-434, 2007.

### **B. Papers presented at international scientific meetings and published in proceedings:**

- B1. Böke A., THEORETICAL STUDY ON THE PHOTON INTERACTION OF POLYMETHYL METHACRYLATE, In: 5. *BİLSEL İNTERNETİONAL TURABDİN SCİENTİFİC RESEARİHES AND İNNOVATİON CONGRESS*, Mardin, Türkiye, 2025, pp. 475-475.
- B2. Böke A., İNCOHERENT SCATTERİNG FUNCTİONS OF WHITE AND GRAY BRAİN TISSUES, In: 8th *İnternational İCONTECH CONGRESS on İnnovative Surveys in Positive Sciences*, Azerbaijan, 2024, pp. 321-321.
- B3. Böke A., COHERENT SCATTERİNG FORM FACTOR DATA FOR TISSUE EQUIVALENT MATERIALS, In: 8th *İnternational İCONTECH CONGRESS on İnnovative Surveys in Positive Sciences*, Azerbaijan, 2024, pp. 322-322.
- B4. Böke A., THE X-RAY ATTENUATİON CHARACTERİSTİCS OF HUMAN BREAST TISSUE EQUIVALENT STRUCTURES, In: *EUROASIA SUMMIT 4 th İNTERNETİONAL APPLIED SCİENCES CONGRESS*, Ukraine, 2021, pp. 146-146.

- B5.** Böke A., Ahat F., Monte Carlo Yöntemi ile Katılarda Foton Etkileşimlerinin Modellenmesi, In: *International Congress of Engineering and Natural Sciences Studies*, Ankara, Türkiye, 2021, pp. 65-65.
- B6.** Böke A., Theoretical approaches for low atomic number materials and the choice of tissue-equivalent substitutes, In: *5 th International Congress on Natural and Engineering Sciences*, İstanbul, Türkiye, 2019, pp. 18-18.
- B7.** Böke A., Accurate calculation of x-ray scattering modeling of molecular structures in Monte Carlo codes, In: *3rd International Symposium on Innovative Approaches in Scientific Studies (Section:Engineering and Natural Sciences)*, Ankara, Türkiye, 2019, pp. 52-52.
- B8.** Böke A., Gencer D., The photon interaction data of blood for medical imaging, In: *4th INTERNATIONAL CONFERENCE ON COMPUTATIONAL AND EXPERIMENTAL SCIENCE AND ENGINEERING (ICCESEN-2017)*, Antalya, Türkiye, 2017, pp. 132-132.
- B9.** Böke A., The theoretical Coherent (Rayleigh) scattering cross section data for plastics, In: *4th INTERNATIONAL CONFERENCE ON COMPUTATIONAL AND EXPERIMENTAL SCIENCE AND ENGINEERING (ICCESEN-2017)*, Antalya, Türkiye, 2017, pp. 133-133.
- B10.** Böke A., Linear attenuation coefficients of tissues from 1 keV to 150 keV and energy distribution by Monte Carlo simulation, In: *Turkish Physical Society 30th International Physics Congress*, İstanbul, Türkiye, 2013, pp. 583-583.
- B11.** Böke A., Molecular interference functions and molecular total coherent cross sections of tissues, In: *Turkish Physical Society 29th International Physics Congress*, Türkiye, 2012, pp. 680-680.
- B12.** Böke A., The total incoherent scattering cross sections for low Z elements, In: *Turkish Physical Society 28th International Physics Congress*, Türkiye, 2011, pp. 838-838.
- B13.** Böke A., Calculation of the total Rayleigh scattering cross sections of photons in the energy range of 30- 50 keV for Nb and Mo elements, In: *Turkish Physical Society 27th International Physics Congress*, İstanbul, Türkiye, 2010, pp. 726-726.
- B14.** Böke A., İnlek G., Yılmaz O., Budding E., Opacity tables for use in Paczynski stellar modelling, In: *Turkish Physical Society 26th International Physics Congress*, Türkiye, 2009, pp. 576-576.
- B15.** Böke A., Özmutlu C., The calculation of total coherent and total incoherent scattering cross sections of gamma rays for lithium element, In: *Turkish Physical Society 26th International Physics Congress*, Türkiye, 2009, pp. 538-538.
- B16.** İnlek G., Böke A., Yılmaz O., Budding E., The role of stellar envelope convection in gravity darkening and gravity darkening effect on light curves and observational checks, In: *6th International Conference of the Balkan Physical Union*, İstanbul, Türkiye, 2006, pp. 601-601.
- B17.** Böke A., Özmutlu C., The energy spectra of once scattered gamma rays in uranium media, In: *6th International Conference of the Balkan Physical Union*, İstanbul, Türkiye, 2006, pp. 552-552.
- B18.** Böke A., Özmutlu C., The calculation of total coherent and total incoherent scattering cross sections of gamma rays for beryllium nitrogen and sodium elements, In: *6th International Conference of the Balkan Physical Union*, İstanbul, Türkiye, 2006, pp. 551-551.
- B19.** Böke A., Özmutlu C., The energy spectra of once scattered and twice scattered gamma rays in aluminum media, In: *6th International Conference of the Balkan Physical Union*, İstanbul, Türkiye, 2006, pp. 111-111.
- B20.** İnlek G., Böke A., Yılmaz O., Budding E., Demircan O., The role of Stellar envelope convection and its relation to observational data, In: *Turkish Physical Society 23rd International Physics Congress*, Muğla, Türkiye, 2005, pp. 363-363.

#### **D. Articles published in national peer-reviewed journals:**

- D1.** Böke A., "Molecular form factor data for tissue-equivalent materials", *Balıkesir Üniversitesi Fen Bilimleri Enstitüsü Dergisi*, vol. 26, no. 2, pp. 549-555, 2024.
- D2.** Böke A., "Coherent X-ray scattering data for plastics", *Journal of Balıkesir University Institute of Science and Technology*, vol. 21, no. 1, pp. 217-222, 2019.
- D3.** Böke A., "The effect of molecular interference on coherent scattering", *Journal of Balıkesir University Institute of Science and Technology*, vol. 19, no. 2, pp. 123-136, 2017.

#### **E. Papers presented at national scientific meetings and published in proceedings:**

- E1.** Böke A., Özmutlu C., Değişik ortamlardaki gama etkileşimlerinde toplam saçılma olasılığı hesabı, In: *Mantık, matematik ve felsefe IV. Ulusal sempozyumu*, İzmir, Türkiye, 2006, pp. 189-194.
- E2.** İnlek G., Böke A., Yılmaz O., Budding E., Kurucz opaklık tablolarının Chebyshev interpolasyon metodu ile incelenmesi, In: *XV. Ulusal Astronomi Kongresi, IV. Ulusal Öğrenci Astronomi Kongresi*, İstanbul, Türkiye, 2006, pp. 128-128.
- E3.** İnlek G., Böke A., Yılmaz O., Budding E., Çekim kararmasının W UMA türü örtin çift yıldızların ışık eğrilerinin üzerine etkisi, In: *XV. Ulusal Astronomi Kongresi, IV. Ulusal Öğrenci Astronomi Kongresi*, İstanbul, Türkiye, 2006, pp. 127-127.
- E4.** Böke A., İnlek G., Yılmaz O., Budding E., Rosseland absorpsiyon katsayılarının Lagrange interpolasyon yöntemiyle farklı sıcaklıklar için hesaplanması, In: *XV. Ulusal Astronomi Kongresi, IV. Ulusal Öğrenci Astronomi Kongresi*, İstanbul, Türkiye, 2006, pp. 21-21.

E5. Bke A., zmutlu C., Bakır ortamında bir kez saçılma yapmış gamanın enerji dağılımının bulunması, In: *Radyasyon ve Çevre sempozyumu-2006*, Çanakkale, Türkiye, 2006, pp. 152-154.