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*Department of Material Science and Engineering*

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**EDUCATION**

- 2000-2006 **Ph.D.**, Materials Science and Engineering Department, Anadolu University, Turkey.  
Title: "*Investigation of the thermal conductivity of SiAlON ceramics*"  
Advisor: Prof. Dr. Hasan MANDAL
- 1998-2000 **M.Sc.**, Materials Science and Engineering Department, Anadolu University, Turkey.  
Title: "*Effect of Si<sub>3</sub>N<sub>4</sub> starting powders on alfa-SiAlON ceramics microstructure*"  
Advisor: Prof. Dr. Hasan MANDAL
- 1994-1998 **B.Sc.**, Ceramic Engineering, Anadolu University

**WORK EXPERIENCE**

- Nov 2018 - Sep 2019 **Sabbatical**, Nanomedicine Lab, Northeastern University, Boston, MA, USA
- Oct 2014 - present **Assist. Prof. Dr.**, *Department of Material Science and Engineering, Çankaya Üniversitesi*
- Aug 2011 - Sep 2014 **Scientific Programs Senior Expert**, TÜBİTAK Engineering Research Grant Committee
- Nov 2006 - Jul 2011 **Scientific Programs Expert**, TÜBİTAK Engineering Research Grant Committee
- Fall 2007 - 2008 **Instructor**, Introduction to Material Science, Atılım University
- Spring 2007 - 2008 **Instructor**, Non-Metallic Materials, Atılım University
- Nov 1998 - Nov 2006 **Research Assistant**, *Department of Material Science and Engineering, Anadolu University*

Aug 2003 - Feb 2004

**Visiting Scientist**, Technical University of Eindhoven, the Netherlands

Jun 1999 – Aug 1999

**Visiting Scientist**, Evo-Silicat Research Center, Ulm, Germany

## **PROJECTS**

TÜBİTAK-Bilateral Project

Development of functionally graded silicon nitride with improved bioactivity, 120N266 (Bilateral Project with The Slovak Academy of Science), Researcher

PhD Thesis

Microstructural Evaluation of  $\alpha$ -SiAlON Materials by Seed Addition and Improvement of Thermal Properties (Anadolu University Scientific Research Fund Project), Researcher

TÜBİTAK-Bilateral Project

$\alpha$ -SiAlON with needle-like microstructure for wear applications, 103M039 (Bilateral Project with The Slovak Academy of Science), Researcher

SAM\* Project

Recycling of Sanitary Ware Wastes (Waste Plaster Molds, Products and Slip), Research Engineer

SAM\* Project

Kinetic Contemplation of Carbonate Decomposition by Different Clay Mineral Additives (Joint Project with evo-Silicatforschung, Germany), Research Engineer

SAM\* Project

Production of High Pressure Polymeric Slip Casts, Research Engineer

Master Thesis

Investigation on Effect of Different  $\text{Si}_3\text{N}_4$  Starting Powders on  $\alpha$ -SiAlON Ceramics Microstructure and Mechanical Properties (Anadolu University Scientific Research Fund Project), Researcher

\*SAM: Ceramic Research Center, Turkey

## **THESIS SUPERVISED**

M.S. Thesis, "Functionally graded  $\text{Si}_3\text{N}_4$  production for biomedical applications" Ogan Tanıl Orhun, Cankaya University, Micro and Nanotechnology Graduate Program (ongoing since 2019)

## **PUBLICATIONS**

### **A- JOURNALS**

- 1) Kuşhan, Ş.R., Mandal, H., "Effect of starting Si<sub>3</sub>N<sub>4</sub> powder type and sintering conditions on the grain morphology of α-SiAlON ceramics", *British Ceramic Transactions*, 101, pp.35-37 (2002)
- 2) Kuşhan, Ş.R., Mandal, H., "Effects of Different Si<sub>3</sub>N<sub>4</sub> Starting Powders and Sintering Conditions on the Grain Morphology and Mechanical Properties of α-SiAlON Ceramics", *Key Engineering Materials*, 206-213, 417-420 (2002)
- 3) Kuşhan, Ş.R., Mandal, H., "The effect of different nucleation temperatures on the grain morphology of α-SiAlON ceramics", *Key Engineering Materials*, 237, pp.169-174 (2003)
- 4) Kuşhan, Ş.R., Mandal, H., "Effect of different nucleation temperatures on the microstructural development of α-SiAlON ceramics", *Key Engineering Materials*, 264-268, pp. 1099-1102 (2004)
- 5) Çalış N., Kuşhan, Ş.R., Kara, F., Mandal, H., "Functionally graded SiAlON ceramics", *Journal of the European Ceramic Society*, Volume 24, Issue 12, pp. 3387-3393 (2004)
- 6) Kuşhan, Ş.R., Uzun, I., Doğan B., Mandal, H., "Experimental and Finite Element Study of The Thermal Conductivity of Y-Sm/α-SiAlON Ceramics", *Journal of the American Ceramic Society*, 90 [12] 3902-3907 (2007)
- 7) Kuşhan, Ş.R., Tamsü N., Açıkbaş, N.C., Suvacı, E., Mandal, H., "Textured α-SiAlON Ceramics via Templated Grain Growth", *Materials Science Forum*, Vol. 554, pp. 79-84 (2007)
- 8) Kuşhan, Ş.R., Açıkbaş, N.C., Krestan, J., Sajgalik, P., Mandal, H., "Role of α-SiAlON Nuclei Addition on the Rod-Like Y-Sm α-SiAlON Formation", *Materials Science Forum*, Vol. 554, pp. 101-106 (2007)
- 9) Güney Mert Bilgin, Ziya Esen, Şeniz Kuşhan Akın, Arcan F. Dericioglu, "Optimization of the mechanical properties of Ti-6Al-4V alloy fabricated by selective laser melting using thermohydrogen processes", *Materials Science and Engineering: A*, Volume 700, pp. 574-582 (2017)
- 10) Seniz Reyhan Kushan Akin, Servet Turan, Pervin Gencoglu, Hasan Mandal, "Effect of SiC addition on the thermal diffusivity of SiAlON ceramics", *Ceramics International*, 43, pp. 13469–13474 (2017)

- 11) Busra Gunhan, Guray Kaya, Mesut Kok, Cigdem Weinekötter, H. Bogac Poyraz and Rasim Ceylantekin and Seniz R. Kushan Akin, "Effects of Process Parameters on Fe<sub>2</sub>O<sub>3</sub>/α-AL<sub>2</sub>O<sub>3</sub> Luster Pigments Produced By Precipitation Method", Int. J. Adv. Res. 8(06), 155-164 (2020)
- 12) Seniz R. Kushan Akin, Caterina Bartomeu Garcia, Thomas J. Webster, "A comparative study of silicon nitride and SiAlON ceramics against *E. Coli*", Ceramics International, Volume 47, Issue 2, 1837-1843 (2021)
- 13) Seniz R. Kushan Akin, Emrah Dolekcekic, Thomas J. Webster, "Antibacterial behavior of oxynitride glasses as a glassy grain boundary phase for silicon nitride-based ceramics", Int J Appl Glass Sci. 2021;12:328–336 (2021)
- 14) Seniz R. Kushan Akin, Emrah Dolekcekic, Thomas J. Webster, "Effect of nitrogen on the antibacterial behavior of oxynitride glasses", Ceramics International, Volume 47, 18213–18217 (2021)

## **B-PROCEEDINGS**

- 1) Kuşhan, Ş.R., Mandal, H., "Farklı çekirdekleşme sıcaklıklarının α-SiAlON seramiklerinin mikroyapı ve mekanik özelliklere etkisinin incelenmesi", 5. Seramik Bil. Kitabı, Editörler: Günay, V., Yücel, O., İstanbul, pp. 302-306 (2001)
- 2) Kalemtaş, A., Kuşhan, Ş.R., Mandal, H., "Çekirdeklendirme ısı işeminin α-SiAlON seramiklerinin çekirdekleştirme tane morfolojisi üzerine etkisi" 5. Seramik Bil. Kitabı, Editörler: Günay, V., Yücel, O., İstanbul, pp. 302-306 (2001)
- 3) Kuşhan, Ş.R, Mandal, H., "Effect of Type of the Si<sub>3</sub>N<sub>4</sub> Powder on the Grain Morphology of α-SiAlON Ceramics", 10. Uluslararası Metalurji ve Malzeme Kong. Bil. Kitabı, İstanbul, Editör: Doruk, M., Gür, C.H., Öztürk, A., Aydınol, K., Şeşen, K., publ. pp.1507-1512 (2002)
- 4) Kuşhan, Ş.R, Aydemir, H., Ay, N., "Atık Kalıp Alçılarının Kalsinasyonu", 10. Uluslararası Metalurji ve Malzeme Kong. Bil. Kitabı, İstanbul, Editör: Doruk, M., Gür, C.H., Öztürk, A., Aydınol, K., Şeşen, K., publ. pp.1571-1577 (2002)
- 5) Akin, B., Kuşhan, Ş.R, Mandal, H., "Sr<sup>2+</sup> - Mn<sup>4+</sup> Doped SiAlON Ceramics", Advances in Science and Technology, 45, 73-76, 2006.

## **PARTICIPATED CONGRESSES and SEMINARS**

Apr 26 – 28, 2021	International Congress of Medicine and Health Sciences (INCOMES), Virtual Congress, Oral Presentation
Sep 17 – 18, 2020	28th Annual Congress of the European Orthopaedic Research Society (EORS 2020), Remote Attendance Virtual Congress, Oral Presentation
Sep 03 – 06, 2013	PPM 2013-International Porous and Powder Materials Symposium and Exhibition, İzmir, Turkey (Invited Speaker)
Jun 20 – 21, 2006	International Symposium on Inorganic Interfacial Engineering, Stockholm, Sweden (Poster Presentation)
Apr 03 - 05, 2006	5th Int. Symposium on Nitrides, Eskişehir, Turkey (Poster Presentation)
Jun 22 - 24, 2005	17 <sup>th</sup> Uluslararası Katılımlı Elektron Mikroskopi Kongresi, Kocaeli, Turkey (Oral Presentation and 1st runner up of Oral Presentation Competition)
Nov 29 - Dec 01, 2004	Advanced Materials Processing (ICAMP-3) and Austceram 2004, Melbourne, Australia (Oral Presentation)
Dec 16 - 17, 2003	Annual Material Days, Veldhoven, Netherlands (Participant)
Nov 17 - 19, 2003	4 <sup>th</sup> Int. Symposium on Nitrides, Mons, Belgium (Poster Presentation)
Jun 29 - Jul 03, 2003	7 <sup>th</sup> Conf. of the European Ceram. Society, Istanbul, Turkey (Poster Presentation)
Dec 02 - 04, 2001	Int. SiAlON Congress, Chiba, Japan (Oral Presentation)
Oct 05 - 07, 2001	5th Ceramic Congress, Istanbul, Turkey (Oral Presentation)
Sep 09 - 13, 2001	7th Conference of the European Ceramic Society, Brugge, Belgium (Candidate of Turkey in the Students Oral Presentation Competition)
July 05 - 07, 2000	3rd Int. Symposium on Nitrides, Sevilla, Spain (Oral Presentation)
May 24 - 28, 2000	10th Int. Metallurgy and Materials Congress, Istanbul, Turkey (Poster Presentation)