

## **ÖZLEM ÇAĞLAR DUVARCI**

Izmir Institute of Technology  
Chemical Engineering Bölümü  
Gülbahçe Köyü Urla/İzmir  
Telefon: + 90 232 750 6664 / +90 536 733 65 27  
Faks: + 90 232 750 6545  
E-posta: [ozlemduvarci@iyte.edu.tr](mailto:ozlemduvarci@iyte.edu.tr)  
[ozlemcaglar@gmail.com](mailto:ozlemcaglar@gmail.com)

### **Education:**

**Post Doctoral Study**-Purdue University (Indiana, ABD)/Food Science [April 2014-February 2016]  
Research Topic: Small and Large Amplitude Oscillatory Flow of Food Materials and Simulation  
Advisor: Prof. Dr. Jozef Kokini

**Visiting Research Fellow**- Nagoya University (Nagoya, Japan)/Green Mobility Collaborative  
Research Center [April 2013-July 2013]  
Research Topic: Surface Treatment of Carbon Materials and Inorganic Colloid Particles by Solution  
Plasma Process  
Advisor: Prof. Dr. Nagahiro Saito ve Assist. Prof. Dr. Tomonaga Ueno

**PhD**- İzmir Institute of Technology/Chemical Engineering [February 2002- February 2009]  
Research Topic: The Rheological Behavior of Nanocrystalline/Submicron Ceramic Powder  
Dispersions  
Advisor: Prof.Dr. Muhsin Çiftçioğlu

**MSc.**- İzmir Institute of Technology/Material Science and Engineering [September 1996- September  
1999]  
Research Topic: The Preparation Characterization and Sintering Behavior of Nanocrystalline  
Ceramics  
Advisor: Prof.Dr. Muhsin Çiftçioğlu

**BSc.:** Ege University/Chemical Engineering[September 1990- August 1996]

### **Academic Positions held:**

Specialst- İzmir Institute of Technology/Chemical Engineering [February 2016-present]  
Post Doc Associate- Purdue University)/Food Science [April 2014- February t 2016]  
Specialist- İzmir Institute of Technology/Chemical Engineering [December 1999-April 2014]  
Research Assistant- İzmir Institute of Technology/Materials Science and Engineering [September  
1997-September 1999]

### **Research Interest:**

- Linear and Non-linear Rheology and Simulation
- Small and Large Amplitude Oscillatory Flow Behavior
- Rheology of dispersions, concentrated suspensions, emulsions and biopolymers
- Rheometric Techniques for Small and Large Deformations
- Nanocrystalline powder preparation (Sol-Gel and Precipitation), consolidation of powders and sintering behavior
- Photocatalytic applications of TiO<sub>2</sub>

### **Publications:**

1. Duvarcı, Ö.Ç., Çiftçiğolu, M., Güden, M., Arikut, G. "Preparation and Microstructural Development of Nanocrystalline Titania and Alumina", *Key Engineering Materials*, 264-268, pp.2355-2358 (2004).
2. Duvarcı, Ö.Ç., Akdeniz, Y., Özmihçı, F., Ülkü, S., Balköse, D., Çiftçiğolu, M., "Thermal behaviour of a zeolitic tuff", *Ceramic International*, Volume 33, Issue 5, pp.795-801 (2007).
3. Duvarcı, Ö.Ç., Çiftçiğolu, M., Preparation and Characterization of Nanocrystalline Titania Powders by Sonochemical Synthesis, *Powder Technology*, , 228, pp. 231-240 (2012).
4. Yazar G., Duvarcı Ö.Ç., Tavman Ş., Kokini J., Effect of mixing on LAOS properties of hard wheat flour dough, *Journal of Food Engineering* 190 (2016) 1-10.
5. Yazar, G., Duvarcı. Ö.Ç., Tavman Ş., Kokini. J.L., Non-Linear Rheological Properties of Soft Wheat Flour Dough at Different Stages of Farinograph Mixing, *Appl. Rheol.* 26:5 (2016) 52508.
6. Duvarcı, Ö.Ç., Yazar, G., Kokini. J.L., The comparison of LAOS behavior of structured food materials (suspensions, emulsions and elastic networks), *Trends in Food Science & Technology* 60 (2017) 2-11.
7. Yazar, G., Duvarcı, Ö.Ç., Tavman Ş., Kokini. J.L., LAOS Behavior of the Two Main Gluten Fractions: Gliadin and Glutenin *Journal of Cereal Science*, 77 (2017) 201-210.
8. Duvarcı, Ö.Ç., Yazar, G., Kokini. J.L., The SAOS, MAOS and LAOS behavior of a concentrated suspension of tomato paste and its prediction using the Bird-Carreau (SAOS) and Giesekus models (MAOS-LAOS), *Journal of Food Engineering* 208 (2017) 77-88.
9. Yazar, G., Duvarcı. Ö.Ç., Tavman Ş., Kokini. J.L., Non-linear Rheological Behavior of Gluten-free Flour Doughs and Correlations of LAOS Parameters with Gluten-free Bread Properties, *Journal of Cereal Science* 74 (2017) 28-39.
10. Duvarcı, Ö.Ç., Yazar, G., Doğan, H., Kokini. J.L., Linear and Non-Linear Rheological Properties of Foods (Book Chapter), *Handbook of Food Engineering*, CRC Press, January 2019.

### **Oral Presentations:**

1. Çağlar, Ö. Ünal, U., Balköse D., Köktürk, U., and Ülkü, S., - Toz Kaolin ve Alüminyum Silikat Liflerinin Karakterizasyonu, 10. Ulusal Kil Sempozyumu Bildiriler Kitabı, s. 94-103, Konya 2001.
2. Çağlar, Ö., Çiftçiğolu, M., Güden, M., - Preparation and Characterization of Nanocrystalline Titania, Uluslararası Katılımlı V. Seramik Kongresi Bildiriler Kitabı, p. 26-31, İstanbul 2001.
3. Duvarcı, Ö.Ç., Akdeniz, Y., Şimşek, D., Çiftçiğolu, M., Ülkü, S., Zeolite Clay Suspensions: Rheological and Sintering Behavior, 14th International Clay Conference, p.68, Bari, Italy, 2009.
4. Duvarcı, Ö.Ç., Çiftçiğolu, M., The densification behavior of nanocrystalline titania, 7. Türkiye Nanobilim ve Nanoteknoloji Konferansı, Sabancı University, p. 23, İstanbul, 27 Haziran-01 Temmuz, 2011.
5. Yurtsever, H. A., Duvarcı, Ö.Ç., Çiftçiğolu, M., Iron and Nickel doped TiO<sub>2</sub> thin film photocatalyst for dye degradation, 7. Türkiye Nanobilim ve Nanoteknoloji Konferansı, Sabancı University, s. 54, İstanbul, 27 Haziran-01 Temmuz, 2011.
6. Çelen, Ö., Duvarcı, Ö.Ç., Çiftçiğolu, M., The rheological behavior of non-aqueous titania suspensions, 7. Türkiye Nanobilim ve Nanoteknoloji Konferansı, Sabancı University, s. 209, İstanbul, 27 Haziran-01 Temmuz, 2011.

7. Duvarcı, Ö.Ç., Çiftçioğlu, M., Mikronaltı Alumina Süspansiyonlarının Reolojik Davranışı Üzerine Monosakkaritlerin Etkisi, 10. Ulusal Chemical Engineering Kongresi, s.17, Koç University, İstanbul, 3-6 Eylül, 2012.
8. Değirmenci, E., Özdoğru, B. Duvarcı Ö.Ç., Çiftçioğlu, M. Sol-Jel ile Hazırlanmış Titanya Tozlarına P-25 Katkısının Fotokatalitik Özelliklere Etkisi, 2. ULUSAL KİMYA MÜHENDİSLİĞİ ÖĞRENCİ KONGRESİ, Ankara University, Ankara, 4-6 Mayıs, 2013.
9. Duvarcı, Ö.Ç., Çiftçioğlu, M., The Effect of Fructose on Rheological Behavior of Alumina Dispersions, 1st International Conference on Rheology and Modelling of Materials, Miskolc-Lillafüred, Hungary, October 7-11, 2013.
10. Duvarcı, Ö.Ç., Yazar, G., Kokini, J.L., Time Dependency of Structured Food Materials in Large Amplitude Oscillatory Shear, 10th Annual European Rheology Conference, Nantes-France, April 14-17, 2015.
11. Duvarcı, Ö.Ç., Yazar, G., Kokini, J.L., The Effect of the Normal Force magnitude during initial loading on the non-linear Rheological Properties of Dough in Large Amplitude Oscillatory Shear Flow ( LAOS ), 12th International Congress on Engineering and Food (ICEF12), Québec City, Canada, June 14-18, 2015.
12. Duvarcı, Ö.Ç., Yazar, G., Kokini, J.L., The comparison of LAOS behavior of structured food materials (suspensions, emulsions and elastic networks), 29th European Federation of Food Science and Technology (EFFoST), Athens, Greece, 10-12 November 2015.
13. Duvarcı, Ö.Ç., Yazar, G., Kokini, J.L., Gıda maddelerinin lineer olmayan osilasyon kayma akışındaki (LAOS) davranışları, Ulusal Chemical Engineering Kongresi (UKMK2016), 23 – 26 Ağustos 2016.
14. Duvarcı, Ö.Ç., Çiftçioğlu, M., Porous Structures of TiO<sub>2</sub> powders derived from Sol-Gel Processing and Sonochemical Precipitation, 3rd International Porous and Powder Materials Symposium and Exhibition (PPM 2017), 12-15 September, 2017.
15. Gao, M., Sadeghi, R., Duvarcı, Ö.Ç., Kokini, J.L., The Effect of Carboxymethyl Cellulose (CMC) on Large Amplitude Oscillatory Shear (LAOS) Behavior of Corn Starch Suspensions, 89th Annual meeting of the Rheology Society, Denver Colorado, Sep. 8-12, 2017.
16. Duvarcı Ö., Çiftçioğlu M. (2017). Porous Structures of TiO<sub>2</sub> powders derived from Sol-Gel Processing and Sonochemical Precipitation. 3rd Porous and Powder Materials Symposium and Exhibitions, Kuşadası, Aydın, 100-100 Oct. 12-15. 2016.
17. Gao, M., Duvarcı, Ö.Ç., Kokini, J.L., The effect of polysaccharide gum on large amplitude oscillatory shear (LAOS) behavior of corn starch suspensions, The 88th Annual Meeting of The Society of Rheology, , Florida, ABD, Feb. 12-16, 2017.
18. Duvarcı, Ö.Ç., Yazar, G., Kokini, J.L., Linear and non-linear rheological behavior of mayonnaise, The International Symposium on Food Rheology And Texture, , ITU Ayazağa Kampüsü, İstanbul, Sept. 19-20. 2018.
19. Yıldırım, M., Turasan, H., Gao M., Duvarcı, Ö., Kokini J., LAOS (Large Amplitude Oscillatory Shear) Rheological Characteristics of Shear Thickening Corn Starch as a Model for Shear Thickening Rheology, Institute of Food Technologists Annual Event and Food Expo, Chicago, ABD, July 13-17. 2018.

**Poster Presentations:**

1. Duvarcı, Ö.Ç., Çiftçioğlu, M., Güden, M., "Preparation and Microstructural Development of Nanocrystalline Titania and Alumina", Proceedings of the 8th Conference and Exhibition of the European Ceramic Society, (8 th ECERS), Istanbul, 29 June-3 July, 2003.
2. Akdeniz Y., Özmişçi F., Çağlar Ö., Balköse D., Ülkü S. Kırka Tinkal Mineralinden Elde Edilen Kilin Karakterizasyonu, XI. Ulusal Kil Sempozyumu Bildiri Kitapçığı, İzmir, 3-6 October 2003.
3. Özmişçi F., Duvarcı Çağlar Ö., Çiftçioğlu M., Polypropylene Composite Preparation and Characterization, 31. International Vacuum and Microbalance Techniques Conference, İzmir Institute of Technology, İzmir, 12–14 September 2007.
4. Duvarcı, Ö.Ç., Çiftçioğlu, M., The Influence of Fructose on the Rheological Behavior of Alumina Dispersions, 14th International Clay Conference, Bari, Italy, 14-20 June 2009.
5. Duvarcı, Ö.Ç., Çiftçioğlu, M., Preparation and Characterization of Nanocrystalline Titania, 6th Chemical Engineering Conference For Collaborative Research In Eastern Mediterranean Countries (EMCC-6), s. 143, Belek, Antalya, Turkey, 7th- 12th March 2010.
6. Yazar, G., Duvarcı. Ö.Ç., Tavman, S., Kokini. J.L., Investigating rheological properties of wheat flour dough at different stages of farinogram using LAOS, 86TH Annual Meeting of the Society of Rheology, Philadelphia, Pennsylvania, October 5 - 9, 2014.
7. Duvarcı. Ö.Ç., Yazar, G., Kokini. J.L., Comparison of the LAOS characteristics of four structured foods consisting of a concentrated emulsion (mayonnaise) , a concentrated suspension (tomato paste) and a viscoelastic network (hard and soft dough) products using LAOS, 86TH Annual Meeting of the Society of Rheology, Philadelphia, Pennsylvania, October 5 - 9, 2014.
8. Duvarcı. Ö.Ç., Gao, M., Kokini. J.L., The Effect of Polysaccharide Gum on Large Amplitude Oscillatory Shear (LAOS) Behavior of Corn Starch Suspensions, 88th Annual meeting of the Rheology Society, Tampa Florida, Feb. 12-16, 2017.
9. Ö. Aksoy, E. Ekmekçi, Ö. Duvarcı, M. Çiftçioğlu, Al<sub>2</sub>O<sub>3</sub> Seramiklerinin Jel Döküm ile Hazırlanması ve Sinterlenmesi, 13. Ulusal Chemical Engineering Kongresi, Van Yüzüncü Yıl University, Van, 2018.

### **Projects:**

Production of Ceramics by Using Natural Zeolite Precursor, DPT (State Planning Organisation) project of Izmir Institute of Technology Department of Chemical Engineering, February 2001-2004 (Project Members: Dr. Semra Ülkü (Project Manager), Dr. Muhsin Çiftçioğlu, Dr. Devrim Balköse, Yelda Akdeniz, Özlem Çağlar Duvarcı, Uğur Ünal)

The Preparation and Characterization of Nanocrystalline Ceramics, DPT (State Planning Organisation) project of IZTECH. Department of Chemical Engineering, (2003-2008), ( Project Members: Dr. Muhsin Çiftçioğlu (Project Manager), Dr. Mustafa Guden, Dr. Sedat Akkurt, Rukiye Çiftçioğlu, Özlem Çağlar Duvarcı)

Preparation and Rheological Characterization of Colloidal Suspensions from Metal Oxide Ceramic Powders (Metal Oksit Seramik Tozlardan Su Ortamında Kolloidal Süspansiyonların Hazırlanması ve Reolojik Davranışlarının İncelenmesi - 2006 İYTE 24) ( Project Members: Dr. Muhsin Çiftçioğlu (Project Manager), Özlem Çağlar Duvarcı)

Nanodesign of rare-earth and transition metal incorporated titania nanocomposites and the investigation of their use in artificial photosynthesis (Nadir toprak ve geiş elementleri katkı Titan kompozitlerinin nanotasarımı ve yapay fotosenteze yönelik kullanımlarının araştırılması – 110M739) ( Project Members : Dr. Muhsin iftiođlu (Project Manager), Hüsnu Arda Yurtsever, Özlem ađlar Duvarcı)