Curriculum Vitae

AYBEN TOP, Ph.D.

Department of Chemical Engineering
Izmir Institute of Technology
35430 Urla-Izmir TURKEY

aybentop@iyte.edu.tr
☎+90(232)750 6630

EDUCATION

University of Delaware
Ph.D. in Materials Science & Engineering 2005-2011

İzmir Institute of Technology
M.Sc. in Chemical Engineering 1998- 2001

Ege University
B.Sc. in Chemical Engineering 1993-1997

WORK EXPERIENCES

İzmir Institute of Technology September 2019-present
Department of Chemical Engineering
Associate Professor

İzmir Institute of Technology 2011-2019
Department of Chemical Engineering
Assistant Professor

İzmir Institute of Technology 2010-2011
Department of Chemical Engineering
Research Assistant

University of Delaware 2005 -2010
Department of Materials Science & Engineering
Research Assistant

İzmir Institute of Technology 1998 -2005
Department of Chemical Engineering
Research Assistant

TEACHING

Undergraduate
CS 101 Basic Information Technology (Fall 2011, Fall 2012, Fall 2013, Fall 2014, Fall 2015)
CHE 211 Introduction to Polymer Science (Fall 2011, Spring 2014, Fall 2016, Fall 2017, Fall 2018, Fall 2019)
CHE 234 Polymer Chemistry (Spring 2015, Spring 2018, Spring 2019)
CHE 321 Thermodynamics II (Fall 2016, Fall 2017, Fall 2018, Fall 2019)
CHE 411 Chemical Engineering Lab III (Spring 2012, Spring 2013, Spring 2014, Spring 2016, Spring 2017, Spring 2018, Spring 2019)
CHE 420 Engineering Economics and Design (Fall 2011, Fall 2012, Fall 2013, Fall 2014, Fall 2015)
CHE 421 Engineering Design (Spring 2012, Spring 2013, Spring 2014, Spring 2015, Spring 2016)

Graduate
CHE 507 Solution Thermodynamics and Phase Equilibria (Spring 2016, Spring 2017, Spring 2018, Spring 2019)
CHE 565 Fundamentals of Polymer Science (Fall 2015)
CHE 568 Bioengineering Polymers (Fall 2019)

CURRENT RESEARCH INTERESTS

Soft materials for biomedical applications
- Drug delivery systems for cancer therapy
- Keratin based biomaterials
- Peptide based hydrogels

Inorganic and hybrid materials
- Photocatalytic materials
- Theranostic nanostructures
- Silica hydrogels
- Antibacterial materials

PUBLICATIONS

(* Denotes corresponding author)
Refereed journal papers

Papers published in SCI & SCI-Expanded journals

1. Pakkaner E., Yalçın D., Uysal B., and **Top A.*** "Self-assembly behavior of the keratose proteins extracted from oxidized Ovis aries wool fibers", International Journal of Biological Macromolecules, 125, 2019, 1008-1015.
2. Balcı B., and **Top A.*** "PEG and PEG-peptide based doxorubicin delivery systems containing hydrazone bond", *Journal of Polymer Research*, 25(4), 2018, 104.
3. Şentürk N., and **Top A.*** "PEG-peptide conjugate containing cathepsin B degradation unit as a doxorubicin carrier system", *Turkish Journal of Chemistry*, 42(2), 2018, 385-400.
4. **Top A.***, and Cetinkaya H. "Zinc oxide and zinc hydroxide formation via aqueous precipitation: Effect of the preparation route and lysozyme addition", *Materials Chemistry and Physics*, 167, 2015, 77-87.
5. **Top A**., Zhong S., Yan C., Roberts C. J.*, Pochan D. J.* and Kiick K.L.* "Controlling assembly of helical polypeptides via PEGylation strategies", *Soft Matter*, 7(20), 2011, 9758-9766.
6. **Top A**., Roberts C. J.*, and Kiick K.L.* "Conformational and aggregation properties of a PEGylated alanine-rich polypeptide", *Biomacromolecules,* 12(6), 2011, 2184-2192.
7. **Top A**., and Kiick K. L.* "Multivalent protein polymers with controlled chemical and physical properties", *Advanced Drug Delivery Reviews,* 62(15), 2010, 1530-1540 *(Invited review)*.
8. Sharma N., **Top A**., Kiick K. L.*, and Pochan D. J.* "One dimensional gold nanoparticle arrays by electrostatically directed organization using polypeptide self-assembly", *Angewandte Chemie International Edition*, 48(38), 2009, 7078-7082.
9. **Top A**., Kiick K.L.*, and Roberts C. J.* "Modulation of self-association and subsequent fibril formation in an alanine-rich helical polypeptide", *Biomacromolecules,* 9(6), 2008, 1595-1603.
10. Farmer R. S., **Top A**., Argust L. M., Liu S., and Kiick K. L.* "Evaluation of conformation and association behavior of multivalent alanine-rich polypeptides", *Pharmaceutical Research*, 25(3), 2008, 700-708.
11. Demir H.*, **Top A**., Balkose D., and Ulku S. "Dye adsorption behavior of *luffa cylindrica* fibers", *Journal of Hazardous Materials*, 153(1-2), 2008, 389-394.
12. **Top A.***, and Ulku S. "Silver, zinc, and copper exchange in a Na-clinoptilolite and resulting effect on antibacterial activity", *Applied Clay Science*, 27(1-2), 2004, 13-19.

Other journal paper

1. **Top A.*** "L-Sistein derişimine bağlı β-$Zn(OH)_2$ oluşumu ve kalsinasyon ürünleri olarak farklı morfolojideki ZnO yapıları/ L-Cysteine concentration dependent β-$Zn(OH)_2$ formation and ZnO structures with different morphology as calcination products", *Dokuz Eylül University-Faculty of Engineering Journal of Science and Engineering*, 20(58), 2018, 275-286 (in Turkish).

Book Chapters

1. **Top A.**, Kaplan H., Atakul-Savrık S., and Balköse D.* "Adsorption of malachite green to silica hydrogel" will appear in Applied Chemistry and Chemical Engineering, Volume 5: Research Methodologies in Modern Chemistry and Applied Science, Editors: A. K. Haghi, Ana Cristina Faria Ribeiro, Lionello Pogliani, Devrim Balköse, Francisco Torrens, Omari V. Mukbaniani, Apple Academic Press, 2018.
2. **Top A.**, Akdeniz Y., Ulutan S., and Balköse D.* "An investigation of kinetic and equilibrium behavior of adsorption of methylene blue on a silica hydrogel", will appear in Physical Chemistry for Engineering and Applied Sciences Theoretical and Methodological Implication, Editors: A. K. Haghi, Cristóbal Noé Aguilar, Sabu Thomas, Praveen K. M., Apple Academic Press, 2018.

Refereed Conference Proceeding

1. **Top A**., Roberts C. J., and Kiick K. L. "pH induced association behavior of an alanine-rich helical polypeptide", *PMSE Preprints*, Volume:99-F08, 2008.

CONTRIBUTED ORAL PRESENTATIONS

(* Denotes presenter)

1. **Top A.***, and Uysal B., "Photocatalytic and optical properties of zinc oxide structures prepared at different urea concentrations", International Agean Symposium on Innovative Interdisciplinary Scientific Researches, March 26-27 (2019), İzmir, Turkey.
2. **Top A.***, and Özkıyıcı S., "Optical and photocatalytical properties of ZnO nanostructures obtained by controlled calcination of L-cysteine assisted aqueous precipitation products", 6th International Congress on Mathematics, Engineering, Natural Medical Science-EJONS, March 8-10 (2019), Adana, Turkey.
3. **Top A.***, "ZnS structures obtained by controlled calcination of L-cysteine assisted aqueous precipitation products", 4th International Scientific Research Congress (UBAK), February 14-17 (2019), Yalova, Turkey.
4. **Top A**.*, and Yüksel N., "A doxorubicin carrier system based on lysosomal enzyme degradable sequence containing PEG-peptide conjugate", 1st International Balkan Chemistry Congress, September 17-20 (2018), Edirne, Turkey.
5. **Top A**.*, and Pakkaner E., "Yün keratozunun kendiliğinden düzenlenme davranışının incelenmesi/ Investigation of the self-assembly behavior of wool keratose", VII. Polymer Science and Technology Congress with International Participitation, September 09-12 (2018), Eskişehir, Turkey.
6. Çakıcıoğlu-Özkan F.*, Becer M., and **Top A**., "Effect of acid type on the structure of clinoptilolite-rich zeolite", 13th National Meeting of Chemical Engineering, September 03-06 (2018), Van, Turkey.
7. Balcı B.*, and **Top A.** 'PEG-peptide based doxorubicin delivery systems', 7th World Congress on Biopolymers and Polymer Chemistry, June 4-6 (2018), Osaka, Japan.
8. Hamza G. O.*, Çakıroğlu B., Gökgöz E. İ., Deliismail Ö., Akın O., **Top A.**, Sofuoğlu A., Şeker E. "Sustainable energy campus", 12th National Meeting of Chemical Engineering, August 23-26 (2016), Izmir, Turkey.
9. Çetinkaya H.*, **Top A.**, "Effect of preparation route and lysozyme addition on the formation of ZnO", 11th National Meeting of Chemical Engineering, September 2-5 (2014), Eskişehir, Turkey.
10. **Top A**.*, Zhong S., Yan C., Roberts C. J., Pochan D. J. and Kiick K.L. "Self-association of a helical polypeptide and its PEGylated forms", 7th Nanoscience & Nanotechnology Conference (NanoTR-VII), 27 June-1 July (2011), Istanbul, Turkey.

11. Sharma N.*, Lamm M. S., Rajagopal K., **Top A**., Kiick K. L., Pochan D. J., and Schneider J. "Directed assembly of nanoparticles using self-assembled peptide templates", ACS 238th National Meeting, August 16-20 (2009), Washington, DC, USA.
12. **Top A**.*, Roberts C. J., and Kiick K. L. "pH induced association behavior of an alanine-rich helical polypeptide", ACS 236th National Meeting, August 17-21 (2008), Philadephia, PA, USA.

FUNDED RESEARCH PROJECTS

- İzmir Institute of Technology Research Foundation
  Title: Development of stimuli responsive PEG-peptide conjugate based curcumin delivery system
  Period: 01/01/2018-12/31/2019

- İzmir Institute of Technology Research Foundation
  Title: Development of endosome disruptive peptide and PEG conjugate based doxorubicin delivery system
  Period: 01/01/2018-12/31/2019

- İzmir Institute of Technology Research Foundation
  Title: Preparation of pH responsive hydrogels
  Period: 06/05/2015-06/05/2017

- The Scientific and Technological Research Council of Turkey, 3501 - Career Development Program (CAREER)
  Title: Development of pH responsive PEG-peptide conjugate based anticancer drug carrier systems
  Period: 04/15/2013-10/15/2016

- İzmir Institute of Technology Research Foundation
  Title: An exploratory study for the preparation of keratin based hydrogels
  Period: 09/07/2012-09/06/2013

RESEARCH MENTORING

PhD. Students Advised

2019- Emre Değirmenci

2018- Burcu Sırma

M.Sc. Students Advised

2019- Gamze Aydoğan

2018- Damla Yalçın

2016-2019 Selin Özkıyıcı
Thesis Title: Development of endosome disruptive peptide and PEG conjugate based doxorubicin delivery system

2017-2019 Berk Uysal
Thesis Title: Peptide hydrogels containing cell attachment molecules

2015-2017	Efecan Pakkaner
Thesis Title:	Hydrogels and self-assembled nanostructures based on wool keratose
2014-2016	Nesligül Yüksel
Thesis Title:	PEG-peptide drug carrier systems with enzymatic degradation units
2013-2016	Beste Balcı
Thesis Title:	Development of PEG and PEG-peptide based drug delivery systems

PROFESSIONAL SERVICES

Scientific meetings activities

2016 Conference Organization Committee Member
12th National Meeting of Chemical Engineering, Izmir, Turkey

2016 Session chair
12th National Meeting of Chemical Engineering, Izmir, Turkey

Memberships in professional organizations

- Turkish Chamber of Chemical Engineers
- American Chemical Society

HONORS AND AWARDS

1997 Made the third place in B.Sc. over 95 students
2008 Office of Graduate Studies Travel Award from University of Delaware