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Education Information

Doctorate, University of Wisconsin-Madison, Kimya Mühendisliği Bölümü, United States Of America 2010 - 2015

Postgraduate, Middle East Technical University, Faculty Of Engineering, Department Of Chemical Engineering, Turkey 2008 - 2010

Undergraduate, Middle East Technical University, Faculty Of Engineering, Department Of Chemical Engineering, Turkey 2003 - 2008

Dissertations

Doctorate, Design of Functional Materials Based on Confined Liquid Crystals, University Of Wisconsin-Madison, Kimya Mühendisliği Bölümü, 2015

Postgraduate, Dehydration of alcohol solutions obtained from a solvent recovery process by pervaporation, Middle East Technical University, Faculty of Engineering, Department of Chemical Engineering, 2010

Research Areas

Thermodynamics, Separation Operations, Optical Properties, Interface Chemistry, Polymeric Materials, Thermodynamics, Surface Chemistry

Academic Titles / Tasks

Assistant Professor, Middle East Technical University, Faculty Of Engineering, Department Of Chemical Engineering, 2018 - Continues

Assistant Professor, Middle East Technical University, Faculty Of Engineering, Department Of Chemical Engineering, 2017 - 2018

Academic and Administrative Experience

Deputy Head of Department, Middle East Technical University, Faculty of Engineering, Department of Chemical Engineering, 2018 - 2021

Courses

Thermodynamics II, Undergraduate, 2019 - 2020

Advising Theses

Büküşoğlu E., SYNTHESIS AND CHARACTERIZATION OF SENSOR MICROPARTICLES TEMPLATED FROM CHOLESTERIC LIQUID CRYSTALS, Postgraduate, D.İŞINSU(Student), 2020

KALIPÇILAR H., BÜKÜŞOĞLU E., Modification of pebax and zif-8/pebax membranes by additional solvent treatment to improve co₂/n₂ separation performance, Postgraduate, A.Abdulalem(Student), 2020

Büküşoğlu E., LIQUID CRYSTAL - TEMPLATED SYNTHESIS OF POLYMERIC MICROPARTICLES WITH COMPLEX NANOSTRUCTURES, Postgraduate, B.AKDENİZ(Student), 2019

Kalıpçılar H., Büküşoğlu E., Design of functional materials using liquid crystals as molecular templates, Postgraduate, A.KARAUSTA(Student), 2018

Jury Memberships

Doctorate, Doctorate, Orta Doğu Teknik Üniversitesi, September, 2018

Articles Published in Journals That Entered SCI, SSCI and AHCI Indexes

- I. **Interpenetrating network based polymeric sensors with enhanced specificity, sensitivity, and reusability**
BATIR Ö., BAT E., BÜKÜŞOĞLU E.
Sensors and Actuators B: Chemical, vol.367, 2022 (Journal Indexed in SCI Expanded)
- II. **Liquid crystal microcapillary-based sensors for affordable analytical applications**
Kurt E., Büküşoğlu E.
SOFT MATTER, vol.18, pp.4009-4016, 2022 (Journal Indexed in SCI)
- III. **Nanoparticle adsorption induced configurations of nematic liquid crystal droplets**
Sengul S., AYDOĞAN N., BÜKÜŞOĞLU E.
JOURNAL OF COLLOID AND INTERFACE SCIENCE, vol.608, pp.2310-2320, 2022 (Journal Indexed in SCI)
- IV. **Controlling Ultrafiltration Membrane Rejection via Shear-Aligned Deposition of Cellulose Nanocrystals from Aqueous Suspensions**
Kocaman C., Büküşoğlu E., Çulfaz Emecen P. Z.
ACS APPLIED MATERIALS & INTERFACES, vol.13, no.30, pp.36548-36557, 2021 (Journal Indexed in SCI)
- V. **Controlling the shapes and internal complexity of the polymeric particles using liquid crystal-templates confined into microwells**
KARAUSTA A., KOCAMAN C., BÜKÜŞOĞLU E.
JOURNAL OF MOLECULAR LIQUIDS, vol.324, 2021 (Journal Indexed in SCI)
- VI. **Chameleon skin-inspired polymeric particles for the detection of toluene vapor**
Avsar D. I. , Büküşoğlu E.
SOFT MATTER, vol.16, pp.8683-8691, 2020 (Journal Indexed in SCI)
- VII. **Identification and sorting of particle chirality using liquid crystallinity**
Akdeniz B., Batır Ö., Büküşoğlu E.
JOURNAL OF COLLOID AND INTERFACE SCIENCE, vol.574, pp.11-19, 2020 (Journal Indexed in SCI)
- VIII. **Strain-enhanced sensitivity of polymeric sensors templated from cholesteric liquid crystals**
Batır Ö., Bat E., Büküşoğlu E.
SOFT MATTER, vol.16, no.29, pp.6794-6802, 2020 (Journal Indexed in SCI)
- IX. **Prolate and oblate chiral liquid crystal spheroids**
Sadati M., Martinez-Gonzalez J. A. , Zhou Y., Qazvini N. T. , Kurtenbach K., Li X., Büküşoğlu E., Zhang R., Abbott N. L. ,

Pablo Hernandez-Ortiz J., et al.

SCIENCE ADVANCES, vol.6, no.28, 2020 (Journal Indexed in SCI)

- X. **Programming van der Waals interactions with complex symmetries into microparticles using liquid crystallinity**
Fuster H. A. , Wang X., Wang X., Bukusoglu E., Spagnolie S. E. , Abbott N. L.
SCIENCE ADVANCES, vol.6, no.25, 2020 (Journal Indexed in SCI)
- XI. **Addressing challenges in the ultrafiltration of biomolecules from complex aqueous environments**
Büküşoğlu E., Koku H., Çulfaz-Emecen P. Z.
Current Opinion in Colloid and Interface Science, vol.46, pp.52-64, 2020 (Journal Indexed in SCI)
- XII. **Design Parameters and Principles of Liquid-Crystal-Templated Synthesis of Polymeric Materials via Photolithography**
AKDENİZ B., BÜKÜŞOĞLU E.
LANGMUIR, vol.35, no.40, pp.13126-13134, 2019 (Journal Indexed in SCI)
- XIII. **Liquid Crystal Templates Combined with Photolithography Enable Synthesis of Chiral Twisted Polymeric Microparticles**
AKDENİZ B., BÜKÜŞOĞLU E.
MACROMOLECULAR RAPID COMMUNICATIONS, vol.40, no.15, 2019 (Journal Indexed in SCI)
- XIV. **Liquid Crystal-Templated Synthesis of Mesoporous Membranes with Predetermined Pore Alignment**
Karausta A., Büküşoğlu E.
ACS APPLIED MATERIALS & INTERFACES, vol.10, no.39, pp.33484-33492, 2018 (Journal Indexed in SCI)
- XV. **Self-reporting and self-regulating liquid crystals**
Kim Y., Wang X., Mondkar P., Bukusoglu E., Abbott N. L.
NATURE, vol.557, no.7706, pp.539-560, 2018 (Journal Indexed in SCI)
- XVI. **Dehydration of Industrial Byproduct Solutions for Recycling via Pervaporation-Adsorption Hybrid Process**
BÜKÜŞOĞLU E., KALIPÇILAR H., YILMAZ L.
INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH, vol.57, no.6, pp.2277-2286, 2018 (Journal Indexed in SCI)
- XVII. **Strain-induced alignment and phase behavior of blue phase liquid crystals confined to thin films**
BÜKÜŞOĞLU E., Martinez-Gonzalez J. A. , Wang X., Zhou Y., de Pablo J. J. , Abbott N. L.
SOFT MATTER, vol.13, no.47, pp.8999-9006, 2017 (Journal Indexed in SCI)
- XVIII. **Active Janus Particles at Interfaces of Liquid Crystals**
Mangal R., Nayani K., Kim Y., Büküşoğlu E., Cordova-Figueroa U. M. , Abbott N. L.
LANGMUIR, vol.33, no.41, pp.10917-10926, 2017 (Journal Indexed in SCI)
- XIX. **Patterned surface anchoring of nematic droplets at miscible liquid-liquid interfaces**
Wang X., Zhou Y., Kim Y., Miller D. S. , Zhang R., Martinez-Gonzalez J. A. , Büküşoğlu E., Zhang B., Brown T. M. , De Pablo J. J. , et al.
SOFT MATTER, vol.13, no.34, pp.5714-5723, 2017 (Journal Indexed in SCI)
- XX. **A Practical Guide to the Preparation of Liquid Crystal-Templated Microparticles**
Wang X., Büküşoğlu E., Abbott N. L.
CHEMISTRY OF MATERIALS, vol.29, no.1, pp.53-61, 2017 (Journal Indexed in SCI)
- XXI. **Synthesis of Optically Complex, Porous, and Anisometric Polymeric Microparticles by Templating from Liquid Crystalline Droplets**
Wang X., Büküşoğlu E., Miller D. S. , Pantoja M. A. B. , Xiang J., Lavrentovich O. D. , Abbott N. L.
ADVANCED FUNCTIONAL MATERIALS, vol.26, no.40, pp.7343-7351, 2016 (Journal Indexed in SCI)
- XXII. **Structural Transitions in Cholesteric Liquid Crystal Droplets**
Zhou Y., BÜKÜŞOĞLU E., Martinez-Gonzalez J. A. , Rahimi M., Roberts T. F. , Zhang R., Wang X., Abbott N. L. , de Pablo J. J.
ACS NANO, vol.10, no.7, pp.6484-6490, 2016 (Journal Indexed in SCI)
- XXIII. **Experimental Insights into the Nanostructure of the Cores of Topological Defects in Liquid Crystals**
Wang X., Kim Y., Büküşoğlu E., Zhang B., Miller D. S. , Abbott N. L.
PHYSICAL REVIEW LETTERS, vol.116, no.14, 2016 (Journal Indexed in SCI)

- XXIV. **Positioning colloids at the surfaces of cholesteric liquid crystal droplets**
BÜKÜŞOĞLU E., Wang X., Zhou Y., A. Martinez-Gonzalez J., Rahimi M., Wang Q., de Pablo J. J., Abbott N. L.
SOFT MATTER, vol.12, no.42, pp.8781-8789, 2016 (Journal Indexed in SCI)
- XXV. **Design of Responsive and Active (Soft) Materials Using Liquid Crystals**
BÜKÜŞOĞLU E., Pantoja M. B., Mushenheim P. C., Wang X., Abbott N. L.
ANNUAL REVIEW OF CHEMICAL AND BIOMOLECULAR ENGINEERING, VOL 7, vol.7, pp.163-196, 2016 (Journal Indexed in SCI)
- XXVI. **Topological defects in liquid crystals as templates for molecular self-assembly**
Wang X., Miller D. S., Büküşoğlu E., De Pablo J. J., Abbott N. L.
NATURE MATERIALS, vol.15, no.1, pp.106-114, 2016 (Journal Indexed in SCI)
- XXVII. **Stimuli-Responsive Cubosomes Formed from Blue Phase Liquid Crystals**
BÜKÜŞOĞLU E., Wang X., Martinez-Gonzalez J. A., de Pablo J. J., Abbott N. L.
ADVANCED MATERIALS, vol.27, no.43, pp.6892-6899, 2015 (Journal Indexed in SCI)
- XXVIII. **Blue-phase liquid crystal droplets**
Martinez-Gonzalez J. A., Zhou Y., Rahimi M., BÜKÜŞOĞLU E., Abbott N. L., de Pablo J. J.
PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, vol.112, no.43, pp.13195-13200, 2015 (Journal Indexed in SCI)
- XXIX. **Nanoparticle self-assembly at the interface of liquid crystal droplets**
Rahimi M., Roberts T. F., Armas-Pérez J. C., Wang X., BÜKÜŞOĞLU E., Abbott N. L., de Pablo J. J.
PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, vol.112, no.17, pp.5297-5302, 2015 (Journal Indexed in SCI)
- XXX. **Hierarchical Microstructures Formed by Bidisperse Colloidal Suspensions within Colloid-in-Liquid Crystal Gels**
Diestra-Cruz H., BÜKÜŞOĞLU E., Abbott N. L., Acevedo A.
ACS APPLIED MATERIALS & INTERFACES, vol.7, no.13, pp.7153-7162, 2015 (Journal Indexed in SCI)
- XXXI. **Colloid-in-liquid crystal gels formed via spinodal decomposition**
BÜKÜŞOĞLU E., Pal S. K., de Pablo J. J., Abbott N. L.
SOFT MATTER, vol.10, no.10, pp.1602-1610, 2014 (Journal Indexed in SCI)
- XXXII. **Colloid-in-Liquid Crystal Gels that Respond to Biomolecular Interactions**
Agarwal A., Sidiq S., Setia S., BÜKÜŞOĞLU E., de Pablo J. J., Pal S. K., Abbott N. L.
SMALL, vol.9, no.16, pp.2785-2792, 2013 (Journal Indexed in SCI)

Articles Published in Other Journals

- I. **Shape Effects on the Structure and Response of the Polymeric Particles Synthesized from Cholesteric Liquid Crystal Templates**
Avşar D. I., BÜKÜŞOĞLU E.
Erciyes Üniversitesi Fen Bilimleri Enstitüsü Dergisi, 2021 (Other Refereed National Journals)
- II. **Positioning of Cubic Shaped Particles with Different Edge Structures in Nematic Medium**
KARAUSTA A., BÜKÜŞOĞLU E.
Celal Bayar Üniversitesi Fen Bilimleri Dergisi, vol.17, no.2, pp.115-120, 2021 (Other Refereed National Journals)

Refereed Congress / Symposium Publications in Proceedings

- I. **Nanoparticle adsorption-induced configurations of liquid crystal droplets**
Şengül S., BÜKÜŞOĞLU E.
ACS Fall 2021, 22 - 26 August 2021
- II. **Enhanced sensitivity of polymeric sensors templated from cholesteric liquid crystals**
BATIR Ö., BAT E., BÜKÜŞOĞLU E.

ACS Fall 2021, 22 - 26 August 2021

- III. **Liquid Crystal Self-Assembly: A Route for Anisotropic Composites**
Şengül S., BÜKÜŞOĞLU E.
20th International Metallurgy and Materials Congress, 10 - 12 June 2021
- IV. **Düşük Maliyette Uygulamalara Yönelik Mikrokapiler Sıvı Kristal Sensörler**
Kurt E., BÜKÜŞOĞLU E.
Ulusal Kimya Mühendisliği Kongresi, 10 - 12 June 2021
- V. **Designing Responsive Polymeric Materials using Liquid Crystallinity**
BÜKÜŞOĞLU E., Akdeniz B., Avşar D. I., Karausta A.
Nano TR, Turkey, 3 - 06 November 2019
- VI. **Liquid Crystal-Templated Synthesis of Complex Microparticles and their Sensor Applications**
Akdeniz B., Karausta A., Kocaman C., Avşar D. I., BÜKÜŞOĞLU E.
Gordon Research Conferences on Liquid Crystals, 7 - 12 July 2019
- VII. **Synthesis of Liquid Crystal Templated Polymeric Microparticles Shaped by Microwells**
Kocaman C., Akdeniz B., Büküşoğlu E.
Eastern Mediterranean Chemical Engineering Conferences 9, Ankara, Turkey, 30 August - 01 September 2018, pp.1
- VIII. **Liquid Crystal-Templated Synthesis of Anisotropic Ultrafiltration Membranes**
Büküşoğlu E., Karausta A.
Eastern Mediterranean Chemical Engineering Conference 9, Ankara, Turkey, 30 August - 01 September 2018, pp.1
- IX. **Synthesis and Characterization of Micro Particles Templated from Cholesteric Liquid Crystal for Sensor Application**
Büküşoğlu E., Avşar D. I.
Eastern Mediterranean Chemical Engineering Conference 9, Ankara, Turkey, 30 August - 01 September 2018, pp.1
- X. **Synthesis of 3D Chiral Microparticles from Nematic Liquid Crystal Templates**
Büküşoğlu E., Akdeniz B.
Eastern Mediterranean Chemical Engineering Conference 9, Ankara, Turkey, 30 August - 01 September 2018, pp.1
- XI. **Cholesteric Liquid Crystal Based Polymeric Sensors for Detection of Volatile Organic Compounds**
Batır Ö., Bat E., Büküşoğlu E.
Eastern Mediterranean Chemical Engineering Conferences 9, Ankara, Turkey, 30 August - 01 September 2018, pp.1
- XII. **Liquid Crystal-Templated Synthesis of Polymeric Films and their Potential Use in Chemical Processes**
Karausta A., Büküşoğlu E.
27th International Liquid Crystal Conference, Kyoto, Japan, 22 - 28 July 2018
- XIII. **Synthesis of Optically Complex, Porous and Anisometric Polymeric Materials by Templating from Liquid Crystalline Media**
BÜKÜŞOĞLU E., Wang X., Abbott N. L.
Gordon Research Conferences on Liquid Crystals, 18 June 2017 - 23 June 2016
- XIV. **Triggered Release of Dispersed Microdroplets from Anisotropic Fluids**
Kim Y., Wang X., BÜKÜŞOĞLU E., Mondkar P., Abbott N. L.
APS March Meeting, 13 March 2017

Activities in Scientific Journals

Frontiers in Soft Matter, Committee Member, 2021 - Continues

Scientific Refereeing

ACS APPLIED MATERIALS & INTERFACES, SCI Journal, December 2020

ACS APPLIED MATERIALS & INTERFACES, SCI Journal, October 2020

ACS OMEGA, SCI Journal, October 2020

TUBITAK Project, 1002 - Quick Support Program, Middle East Technical University, Turkey, June 2020

ACS APPLIED POLYMER MATERIALS, SCI Journal, May 2020

LANGMUIR, SCI Journal, April 2020

TUBITAK Project, 1002 - Quick Support Program, Middle East Technical University, Turkey, January 2020

Edit Congress and Symposium Activities

Eastern Medditerranean Chemical Engineering Conferences, Working Group, Ankara, Turkey, 2018

Eastern Medditerranean Chemical Engineering Conferences, Working Group, Ankara, Turkey, 2018

Eastern Medditerranean Chemical Engineering Conferences, Working Group, Ankara, Turkey, 2018

International Liquid Crystals Conference 2018, Working Group, Kyoto, Japan, 2018

Citations

Total Citations (WOS):654

h-index (WOS):13

Awards

Büküşođlu E., Üstün Başarılı Genç Bilim İnsanı Ödülü, Türkiye Bilimler Akademisi, December 2021

Büküşođlu E., Bilim Akademisi Genç Biliminsanı Ödülü, Bilim Akademisi, April 2019