

## CONTACT AND PROFILE INFORMATION

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## EDUCATIONAL BACKGROUND

2015 PhD in Materials Sci. & Eng. @ ITU, Turkey  
2012 Visiting PhD Student in Inst. Chemistry. @ Blaise Pascal University, France  
2008 MSc in Materials Sci. & Eng. @ ITU, Turkey  
2006 BSc in Chemical Eng. @ ITU, Turkey

## MAJOR PROFESSIONAL EXPERIENCE

2023-Sept / onwards Associate Professor @ Institute of Nanotechnology, GTU.  
2024-Jan / onwards Assistant Director @ Institute of Nanotechnology, GTU.  
2022-Dec / onwards Assistant Director @ Nanotechnology Research and Application Center, GTU.  
2019-July / 2023-Sept Assistant Professor @ Inst. of Nanotechnology., GTU.  
2018-Jan / 2019-June Research Fellow @ Koç University.  
2016-Sept / 2017-Dec Research Fellow @ Nanyang Tech. University.  
2015-Mar / 2016-Sept Research Fellow @ ITU.  
2009-Jan / 2014-Dec Research & Teaching Asst. @Istanbul Technical University, Chemical Eng. Dept.

## KEY HONORS AND AWARDS

2023 Turkish Academy of Sciences (TUBA) Outstanding Young Scientist Award (GEBIP).  
2016 2015 Best PhD Thesis Award by Istanbul Technical University, Turkey.  
2014 Excellent Poster Award @ 10th International Congress on Membranes and Membrane Processes (ICOM), China.  
2013 Scholarship by International Doctoral Research Fellowship from the Scientific and Technological Research Council of Turkey (TUBITAK-2214-A).  
2008 Best Poster Award @ Engineering with Membranes (EWM) 2008, Portugal.

## RESEARCH PROJECTS INVOLVED

- 10) "Investigation of Organic Solvent Separation Performance of MXene Membranes Specifically for Dye and Pharmaceutical Industries for the Economic Growth and Environmental Sustainability" funded by TUBITAK, Grant No: 223M298, Principal Investigator: Sadiye Velioğlu, Researchers: S. Birgül Tantekin-Ersolmaz and Rong Wang, 2024-2027.
- 9) "Investigation of Natural Gas Purification Potentials of Hypothetical MXene Structures by Combining High Throughput Computational Screening and Machine Learning Approaches" funded by TUBITAK, Grant No: 123M410, Principal Investigator: Sadiye Velioğlu, Researcher: Yakup Genç, 2023-2025.
- 8) "Natural gas purification with hybrid carbon molecular sieve membranes" funded by 2023 GTU113 BAP ADEP, Grant No: 2023-A-113-15, Principal Investigator: Sadiye Velioğlu, 2023-2025.

- 7) "MXene-based highly sensitive, cost-effective, scalable, and biodegradable chemosensor for detection of poisonous gases" funded by 2023 GTU113 BAP ADEP, **Grant No: 2023-A-113-20**, Principal Investigator: Nihan Aydemir, Researcher: **Sadiye Velioğlu**, 2023-2026.
- 6) "Nanocomposite membranes of novel high-free volume polymers for separation of helium, nitrogen, CO<sub>2</sub>, and C<sub>2</sub>-C<sub>4</sub> hydrocarbons from natural gas/biogas" funded by TUBITAK, **Grant No: 220N057**, Principal Investigator: S. Birgül Tantekin-Ersolmaz, Researcher: **Sadiye Velioğlu**, 2021-2024.
- 5) "Molecular investigation of hydrogen separation potential of MXene nanomaterials for efficient and economical energy production" funded by TUBITAK, **Grant No: 120M180**, Principal Investigator: **Sadiye Velioğlu**, 2020-2022.
- 4) "Computational simulations of MOFs for gas separation" funded by **ERC-2017-Starting project, COSMOS**, Principal Investigator: Seda Keskin-Avcı, 2017-2022, İstanbul.
- 3) "Development of Novel Thin Film Nanocomposite Desalination Membranes with High Boron Rejection Capacity" funded by TUBITAK, **Grant No: 114Y165**, Principal Investigator: S. Birgül Tantekin-Ersolmaz, 2015-2016.
- 2) "Design of the Antibacterial Zeolite-Polymer Composites via Molecular Modeling and Simulation", funded by TUBITAK, **Grant No: 110M086**, Principal Investigator: M. Göktuğ Ahunbay, 2010-2011.
- 1) "Molecular Modeling of the Sorption Behavior of Organic Compounds in Nano-Porous Organic and Inorganic Membranes" funded by TUBITAK, **Grant No: 106M339**, Principal Investigator: M. Göktuğ Ahunbay, 2007-2010.

## PUBLICATIONS

### PATENT

William Bernard Krantz, **Sadiye Velioğlu**, Süer Kürklü, Mehmet Göktuğ Ahunbay, Serife Birgül Ersolmaz, "Concurrent Desalination and Boron Removal (CDBR) Process", International Publication Number: WO/2018/074984 A1 (date: 26/04/2018). International Application No for Israel: PCT/TR/2016/050387 (date: 13/02/2018). International Publication No for Spain: ES2672787 (date: 14/03/2019).

### BOOK CHAPTER

C. YILDIRIM, H. E. KARAHAN, **S. VELIOĞLU**, A. SARIOĞLAN, Ş. B. ERSOLMAZ, G. BEHNAM, Molecular sieving membrane development for syngas purification, in "Advances in Synthesis Gas: Methods, Technologies, and Applications" Elsevier, Netherlands, ISBN: 978-0-323-91877-0, October 2022.

### JOURNAL ARTICLES

- 36) **S. Velioğlu**, H. E. Karahan, Ş. B. Tantekin-Ersolmaz, Predictive transport modelling in polymeric gas separation membranes: From additive contributions to machine learning, **Separation and Purification Technology**, 2024. DOI: 10.1016/j.seppur.2024.126743
- 35) T. Baysal, A. Güvensoy-Morkoyun, Ş. B. Tantekin-Ersolmaz\*, **S. Velioğlu\***, Methanol Recovery: Potential of Nanolaminate OSN Membranes, **Nanoscale**, 2024, 16, 3393-3416. (Selected for a themed collection of "Nanoscale 2024 Emerging Investigators")
- 34) Ş. Massoumlari, M. Doğançlı, T. Baysal, **S. Velioğlu\***, Molecular Simulations of MXene Nanosheet-Based Membranes for Syngas Separation, **ACS Applied Nano Materials**, 2023. (Selected to a special issue on "Women in Nano") DOI: 10.1021/acsanm.3c03526

- 33) Ş. Massoumlari, **S. Velioğlu\***, Can MXene be the Effective Nanomaterial Family for the Membrane and Adsorption Technologies to Reach a Sustainable Green World?, *ACS Omega*, 8 (33) (2023) 29859–29909. (Selected as Front Cover)
- 32) L. Nie, K. Goh, Y. Wang, **S. Velioğlu**, Y. Huang, S. Dou, Y. Wan, K. Zhou, T.-H. Bae, J.-M. Lee, Hyperlooping Carbon Nanotube-Graphene Oxide Nanoarchitectonics as Membranes for Ultrafast Organic Solvent Nanofiltration, *ACS Materials Letters*, 5 (2023) 357–369.
- 31) Ş. Massoumlari, M. Doğançlı, **S. Velioğlu\***, Unveiling the Potential of MXenes for H<sub>2</sub> Purification and CO<sub>2</sub> Capture as an Emerging Family of Nanomaterials, *AIChE Journal*, e17837. (Selected to special issue of "2022 Futures Issue of the AIChE Journal")
- 30) A. Güvensoy-Morkoyun, **S. Velioğlu\***, Ahunbay M. G., Tantekin-Ersolmaz S. B.\*, Desalination Potential of Aquaporin-Inspired Functionalization of Carbon Nanotubes: Bridging Between Simulation and Experiment, *ACS Applied Materials & Interfaces* 14 (24) (2022) 28174–28185.
- 29) M. Doğançlı, **S. Velioğlu\***, Identification of H<sub>2</sub>/CO<sub>2</sub> Separation Performance of Inorganic Porous Adsorbents via Molecular Simulations, *International Journal of Environment and Geoinformatics* 9 (3) (2022) 91–96.
- 28) **S. Velioğlu\***, Selective adsorption of acidic gases from ternary mixture by acetate- and sulfonate-based ionic liquids at molecular level, *Turkish Journal of Chemistry* 46 (2022) 128–139.
- 27) A. Güvensoy-Morkoyun, Kürklü-Kocaoğlu, S., Yıldırım, C., **Velioğlu, S.**, Karahan, H. E., Bae, T. H., Tantekin-Ersolmaz, Ş. B.\*, Carbon Nanotubes Integrated in Polyamide Membranes by Support Pre-Infiltration Improve the Desalination Performance, *Carbon* 185 (2021) 546–557.
- 26) Y. Ma, **Velioğlu S.**, Trinh T. A., Wang R., Chew J. W.\*, Investigation of Surfactant–Membrane Interaction Using Molecular Dynamics Simulation with Umbrella Sampling, *ACS ES&T Engineering* 1, 10 (2021) 1470–1480.
- 25) Y. Ma, **Velioğlu S.**, Yin Z., Wang R., Chew J. W.\*, Molecular dynamics investigation of membrane fouling in organic solvents, *Journal of Membrane Science* 632 (2021) 119329.
- 24) M. Balçık, **Velioğlu S.\***, Tantekin-Ersolmaz S. B., Ahunbay M. G.\*, Can crosslinking improve both CO<sub>2</sub> permeability and plasticization resistance in 6FDA–pBAPS/DABA copolyimides? *Polymer* 205 (2020) 122789.
- 23) **S. Velioğlu**, Karahan H. E., Goh K., Bae T.-H., Chen Y.,\* Chew J. W.\*, Metallicity-Dependent Ultrafast Water Transport in Carbon Nanotubes, *Small* (2020) 1907575.
- 22) **S. Velioğlu**, Keskin S.\*, Revealing the effect of structure curations on the simulated CO<sub>2</sub> separation performances of MOFs, *Materials Advances* 1 (2020) 341–353. (Selected as Inside Front Cover)
- 21) Y. Ma, **Velioğlu S.**, Tanis-Kanbur M. B., Wang R., Chew J. W.\*, Mechanistic understanding of the adsorption of natural organic matter by heated aluminum oxide particles (HAOPs) via molecular dynamics simulation, *Journal of Membrane Science* 598 (2020) 117651.
- 20) G. Avci, **Velioğlu S.**, Keskin S.\*, In-silico design of metal-organic frameworks with enhanced CO<sub>2</sub> separation performance: Role of metal sites, *Journal of Physical Chemistry C* 123 (2019) 46, 28255–28265.
- 19) E. Huixiang Ang, **Velioğlu S.**, Chew J. W.\*, Tunable affinity separation enables ultrafast solvent permeation through layered double hydroxide membranes, *Journal of Membrane Science* 591 (2019) 117318.

- 18) Y.-Z. Tan, **Velioglu S.**, Han L., Joseph B. D., Unnithan L. G., Chew J. W.\*; Effect of surfactant hydrophobicity and charge type on membrane distillation performance, *Journal of Membrane Science* 587 (2019) 117168.
- 17) C. Altintas, **Velioglu S.**, Keskin S.\*; Reply to comment on "Database for CO<sub>2</sub> separation performances of MOFs based on computational materials screening", *ACS Applied Material and Interfaces* 11 (2019) 16266-16271.
- 16) A. Nemati Vesali Azar, **Velioglu S.**, Keskin S.\*; Large-scale computational screening of MOF membranes and MOF-based polymer membranes for H<sub>2</sub>/N<sub>2</sub> separations, *ACS Sustainable Chemistry and Engineering* 7 (2019) 9525-9536.
- 15) C. Altintas, Avci G., Daglar H., Nemati Vesali Azar A., **Velioglu S.\***, Erucar I., Keskin S.\*; An extensive comparative analysis of two MOF databases: High-throughput screening of computation-ready MOFs for CH<sub>4</sub> and H<sub>2</sub> adsorption, *Journal of Materials Chemistry A* 7 (2019) 9593-9608.
- 14) **S. Velioglu**, Keskin S.\*; Simulation of H<sub>2</sub>/CH<sub>4</sub> mixture permeation through MOF membranes using non-equilibrium molecular dynamics, *Journal of Materials Chemistry A* 7 (2019) 2301-2314.
- 13) C. Altintas, Avci G., Daglar H., Nemati Vesali Azar A., **Velioglu S.**, Erucar I., Keskin S.\*; Database for CO<sub>2</sub> separation performances of MOFs based on computational materials screening, *ACS Applied Material and Interfaces* 10 (2018) 17257-17268.
- 12) G. Avci, **Velioglu S.**, Keskin S.\*; High throughput screening of MOFs as adsorbents and membranes for pre-combustion CO<sub>2</sub>/H<sub>2</sub> separation, *ACS Applied Material and Interfaces* 10, 39 (2018) 33693-33706.
- 11) M. B. Tanis-Kanbur, **S. Velioglu**, H. J. Tanudjaja, X. Hu, J. W. Chew\*, Understanding membrane fouling by oil-in-water emulsion via experiments and molecular dynamics simulations, *Journal of Membrane Science* 566 (2018) 140-150.
- 10) **S. Velioglu**, Han L., Chew J. W.\*; Understanding membrane pore-wetting in the membrane distillation of oil emulsions via molecular dynamics simulations, *Journal of Membrane Science* 551 (2018) 76-84.
- 9) **S. Velioglu**, Ahunbay M. G.\*; Tantekin-Ersolmaz S. B.\*; An atomistic insight on CO<sub>2</sub> plasticization resistance of thermally rearranged 6FDA-BisAPAF, *Journal of Membrane Science* 556 (2018) 23-33.
- 8) **S. Velioglu**, Tantekin-Ersolmaz S. B., Chew J. W.\*; Towards the generalization of membrane structure-property relationship of polyimides and copolyimides: A group contribution study, *Journal of Membrane Science* 543 (2017) 233-254.
- 7) Kürklü S., **Velioglu S.**, Ahunbay M. G., Tantekin-Ersolmaz S. B.\*; Krantz W. B., A novel energy-efficient concurrent desalination and boron removal (CDBR) process, *Desalination* 423 (2017) 79-94.
- 6) **S. Velioglu**, Ahunbay M. G.\*; Tantekin-Ersolmaz S. B.\*; Novel co-polyimides containing pBAPS (bis [4-(4-aminophenoxy) phenyl] sulfone) for CO<sub>2</sub> separation, *Separation and Purification Technology* 178 (2017) 90-104.
- 5) H. Y. Lee, Cai Y., **Velioglu S.**, Mu C., Chang C. J., Chen Y. L., Song Y., Chew J. W.\*; Hu X. M.\*; Thermochromic ionogel: A new class of stimuli responsive materials with super cyclic stability for solar modulation, *Chemistry of Materials* 29 (2017) 6947-6955.
- 4) **S. Velioglu**, Ahunbay M. G.\*; Tantekin-Ersolmaz S. B.\*; Propylene/propane plasticization in polyimide membranes, *Journal of Membrane Science* 501 (2016) 179-190.
- 3) **S. Velioglu**, Tantekin-Ersolmaz S. B.\*; Prediction of gas permeability coefficients of copolyimides by group contribution methods, *Journal of Membrane Science* 480 (2015) 47-63.

- 2) S. Velioğlu, Yao X., Devemy J., Ahunbay M. G., Tantekin-Ersolmaz S. B., Dequidt A., Costa Gomes M. F., Padua A. A. H.\*, Solvation of a cellulose microfibril in imidazolium acetate ionic liquids: Effect of a co-solvent, *The Journal of Physical Chemistry B* 118 (2014) 14860-14869.
- 1) S. Velioğlu, Ahunbay M. G., Tantekin-Ersolmaz S. B.\*, Investigation of CO<sub>2</sub>-induced plasticization in fluorinated polyimide membranes via molecular simulation, *Journal of Membrane Science* 417 (2012) 217-227.

## INTERNATIONAL CONFERENCE PRESENTATIONS (presenting author underlined)

- 1) S. Halitoğlu, Ahunbay M. G., Tantekin-Ersolmaz S. B., Molecular Simulation of the Sorption Behavior of Gases in Polyimide Membranes, *Engineering with Membranes 2008*, Membrane processes, 26-28 May 2008, Algarve, Portugal | **Poster Presentation** | **Best Poster Award**.
- 2) S. Halitoğlu, Ahunbay M. G., Tantekin-Ersolmaz S. B., Synthesis, Gas Permeability, and Molecular Simulation of Copolyimide Membranes Containing Sulfone Groups, *North American Membrane Society (NAMS) 2009*, 20-24 June 2009, Charleston, South Carolina, USA | **Poster Presentation**.
- 3) S. Velioğlu, Ahunbay M. G., Tantekin-Ersolmaz S. B., Molecular Simulation of the Sorption Behavior of Gases in Copolyimide Membranes, *Euromembrane 2009*, 6-10 September 2009, Montpellier, France | **Poster Presentation**.
- 4) S. Velioğlu, Ahunbay M. G., Tantekin-Ersolmaz S. B., Synthesis, Characterization, and Molecular Simulation of 6FDA/BTDA-pBAPS Copolyimide Membrane for CO<sub>2</sub>/CH<sub>4</sub> Separation, *Euromembrane 2009*, 6-10 September 2009, Montpellier, France | **Oral Presentation**.
- 5) S. Velioğlu, Ahunbay M. G., Tantekin-Ersolmaz S. B., Propane/propylene plasticization in polyimide membranes via molecular simulation methods, *ICOM 2011*, 23-29 July 2011, Amsterdam | **Oral Presentation**.
- 6) A. H. Avci, F. Hoppenbrouwer, S. Velioğlu, M. G. Ahunbay, S. B. Tantekin-Ersolmaz, Mixed-gas permeation and CO<sub>2</sub> plasticization behavior of ternary mixed-matrix membranes, *ICOM 2011*, 23-29 July 2011, Amsterdam | **Poster Presentation**.
- 7) S. Velioğlu, Ahunbay M. G., Tantekin-Ersolmaz S. B., Investigation of CO<sub>2</sub>-induced Plasticization in Sulfone Group Containing Copolyimides via Molecular Simulation, *ICOM 2011*, 23-29 July 2011, Amsterdam | **Poster Presentation**.
- 8) S. Velioğlu, Ahunbay M. G., Tantekin-Ersolmaz S. B., Residual Solvent Effect on CO<sub>2</sub>-induced Plasticization of Polyimide Membranes, *AICHE Annual Meeting-2012*, 28 October - 3 November 2012, Pittsburgh, PA, USA | **Oral Presentation**.
- 9) S. Velioğlu, Ahunbay M. G., Tantekin-Ersolmaz S. B., CO<sub>2</sub>-induced Plasticization in Copolyimides Containing a Sulfone Group, *AICHE Annual Meeting-2012*, 28 October - 3 November 2012, Pittsburgh, PA, USA | **Poster Presentation**.
- 10) A. A. H. Padua, Velioğlu S., Devemy J., Andanson J. M., Costa-Gomes M. F., Cellulose in ionic liquids: Dissolution experiments in the presence of a co-solvent and solvation of a microfibril by molecular simulation, *248<sup>th</sup> ACS National Meeting*, 10-14 August 2014, San Francisco, CA, USA | **Invited talk**, presented by Padua A.A.H.
- 11) S. Velioğlu, Yao X., Bordes E., Devemy J., Andanson J. M., Costa Gomes M. F., Padua A. A. H., The solvation of cellulose in ionic liquids: experiments and simulation of a microfibril, *ILSEPT - 2<sup>nd</sup>*

- International Conference on Ionic Liquids in Separation and Purification Technology*, June 29 - July 2, 2014, The Westin Harbour Castle, Toronto, Canada | **Keynote lecture**, presented by Padua A.A.H.
- 12) **S. Veliöđlu**, Ahunbay M. G., Tantekin-Ersolmaz S. B., Investigation of Propylene/Propane Plasticization Effect in Polyimide Membranes via Molecular Simulation Methods, *ICOM 2014*, 20-25 July 2014, Suzhou, China | **Poster Presentation** | **Excellent Poster Award**.
  - 13) **S. Veliöđlu**, Ahunbay M. G., Tantekin-Ersolmaz S. B., Prediction of Plasticization Resistance of 6FDA-based Polyimide Membranes via Molecular Simulation, *ICOM 2014*, 20-25 July 2014, Suzhou, China | **Oral Presentation**.
  - 14) M. Balcik, **Veliöđlu S.**, Ahunbay M. A., Tantekin-Ersolmaz S. B., CO<sub>2</sub>-induced Plasticization in Copolyimides Containing a Sulfone Group, *AIChE Annual Meeting-2014*, 16-21 November 2014, Atlanta, GA, USA | **Oral Presentation**.
  - 15) **S. Veliöđlu**, Ahunbay M. G., Tantekin-Ersolmaz S. B., Propylene/Propane Plasticization in Unary and Binary Gas Sorption on 6FDA-based Polyimide Membranes, *46<sup>th</sup> IUPAC World Polymer Congress, MACRO 2016*, 17-21 July 2016, Istanbul, Turkey | **Oral Presentation**.
  - 16) **S. Kürklü**, Özgür K., **Veliöđlu S.**, Krantz W. B., Tantekin-Ersolmaz S. B., Polyamide Thin Film Nanocomposite (TFN) Membranes for Simultaneous Boron Removal and Desalination of Seawater, *AIChE Annual Meeting-2016*, 13-18 November 2016, San Francisco, CA, USA | **Oral Presentation**.
  - 17) M. Ahmadi, **Veliöđlu S.**, Tas E., Ahunbay M. G., **Tantekin-Ersolmaz S. B.**, Strontium-Based Bimetallic Metal Organic Frameworks (MOFs) for CO<sub>2</sub> Separation, *AIChE Annual Meeting-2016*, 13-18 November 2016, San Francisco, CA, USA | **Oral Presentation**.
  - 18) Kürklü S., **Veliöđlu S.**, Ahunbay M. G., Tantekin-Ersolmaz S. B., **Krantz W. B.**, Concurrent Desalination and Boron Removal (CDBR) Process, *Engineering with Membranes-2017*, 26-28 April 2017, Singapore | **Keynote Lecture** presented by Krantz W. B.
  - 19) **S. Veliöđlu**, Tantekin-Ersolmaz S. B., Chew J. W., Generalizations from Molecular Simulation of Polyimide and Copolyimide sub-structures for the Robeson Diagram, *Engineering with Membranes-2017*, 26-28 April 2017, Singapore | **Poster Presentation**.
  - 20) Kürklü S., **Veliöđlu S.**, Ahunbay M. G., Tantekin-Ersolmaz S. B., **Krantz W. B.**, A Novel Process for Concurrent Desalination and Boron Removal, *AIChE Annual Meeting-2017*, October 29 - November 3, 2017, Minneapolis, MN, USA | **Oral Presentation**.
  - 21) **S. Veliöđlu**, Han L., **Chew J. W.**, Understanding Membrane Pore-Wetting in the Membrane Distillation of Oil Emulsions Via Molecular Dynamics Simulations, *NAMS 2018 Annual Meeting*, 9-13 June 2018, Lexington, KY USA | **Poster Presentation**.
  - 22) S. Kayaci, S. Kürklü, **S. Veliöđlu**, M. G. Ahunbay, S. B. Tantekin-Ersolmaz, **W.B. Krantz**, Concurrent Desalination and Boron Removal via Reverse Osmosis, *Euromembrane 2018*, 9 - 13 July 2018, Valencia, Spain | **Oral Presentation**.
  - 23) **A. Güvensoy**, S. Kürklü-Kocaoglu, **S. Veliöđlu**, M. G. Ahunbay, S. B. Tantekin Ersolmaz, Polyamide/CNT Thin Film Nanocomposite Membranes for Simultaneous Boron Removal and Desalination of Seawater, *Euromembrane 2018*, 9-13 July 2018, Valencia, Spain | **Oral Presentation**.
  - 24) S. Kayaci, S. Kürklü, **S. Veliöđlu**, W. B. Krantz, S. B. Tantekin-Ersolmaz, **M. G. Ahunbay**, Concurrent Desalination and Boron Removal Via Reverse Osmosis, *AIChE Annual Meeting-2018*, October 28 - November 2, 2018, Pittsburgh, PA, USA | **Oral Presentation**.

- 25) M. Balçık, **S. Velioglu**, S. B. Tantekin-Ersolmaz, M. G. Ahunbay, Effect of Cross-Linking on CO<sub>2</sub>-Induced Plasticization Resistance of Polyimides Containing DABA Diamine - A Molecular Simulation Study, *AICHE Annual Meeting-2018*, October 28 - November 2, 2018, Pittsburgh, PA, USA | **Oral** Presentation.
- 26) **S. Velioglu**, S. Keskin, In-silico Elucidation of H<sub>2</sub>/CH<sub>4</sub> Mixture Permeation through MOF Membranes via Non-Equilibrium Molecular Dynamics, *MOFSIM 2019*, April 10 – 12, 2019, Ghent, Belgium | **Poster** presentation.
- 27) A. Guvensoy, S. Kürklü-Kocaoğlu, C. Yildirim, **S. Velioglu**, S. B. Tantekin-Ersolmaz, Polyamide/CNT Thin Film Nanocomposite (TFN) RO Membranes with Improved Boron Rejection, *AICHE Annual Meeting-2019*, November 10 - 15, 2019, Orlando, FL, USA | **Oral** Presentation.
- 28) G. Avci, **S. Velioglu**, S. Keskin, High Throughput Screening of MOF Adsorbents and Membranes for H<sub>2</sub> Purification and CO<sub>2</sub> Capture, *EuroMOF 2019*, October 27 - 30 2019, Paris, France | **Poster** presentation.
- 29) E. H. Ang, **S. Velioglu**, J. W. Chew, Tunable affinity separation enables ultrafast solvent permeation through layered double hydroxide membranes, *ICOM 2020*, 7-11 December 2020, UK | **Poster** Presentation.
- 30) Y. Ma, **S. Velioglu**, M. B. Tanis-Kanbur, R. Wang, J. W. Chew, Mechanistic understanding of the adsorption of natural organic matter by heated aluminum oxide particles (HAOPs) via molecular dynamics simulation, *ICOM 2020*, 7-11 December 2020, UK | **Poster** Presentation.
- 31) S. Kurklu-Kocaoglu, A. Güvensoy-Morkoyun, C. Yıldırım, **S. Velioglu**, M. G. Ahunbay, S. B. Tantekin-Ersolmaz, Thin Film Nanocomposite (TFN) Membranes for Desalination with Improved Boron Rejection, *NAMS 2021*, August 28 – September 2, Colorado, UK | **Poster** Presentation.
- 32) Y. Ma, **S. Velioglu**, Z. Yin, R. Wang, J. W. Chew, Molecular dynamics investigation of membrane fouling in organic solvents, *NAMS 2021*, August 28 – September 2, Colorado, UK | **Poster** Presentation.
- 33) T. BAYSAL, **S. VELIOĞLU**, Identification of Organic Solvent Nanofiltration Performances of MXenes via Non-equilibrium Molecular Dynamic Simulations, 16<sup>th</sup> Nanoscience and Nanotechnology Conference (*NANOTR-16*), 5-8 September 2022, Ankara, TURKEY | **Oral** Presentation.
- 34) Ş. MASSOUMILARI, **S. VELIOĞLU**, High-Throughput Computational Screening Evaluating the MXene Adsorbents: Ideal CO<sub>2</sub>/H<sub>2</sub> Separation Performance and The Impact of Interlayer Distance, *NANOTR-16*, 5-8 September 2022, Ankara, TURKEY | **Oral** Presentation.
- 35) E. YAZKAN, **S. VELIOĞLU**, Thousands of Hypothetical MXene Adsorbents for CO<sub>2</sub>/CH<sub>4</sub> Mixture Separation: High-throughput Computational Screening Study, *NANOTR-16*, 5-8 September 2022, Ankara, TURKEY | **Oral** Presentation.
- 36) **S. VELIOĞLU**, Ş. MASSOUMILARI, M. DOĞANCI, Potential of MXene Membranes for H<sub>2</sub>/CO<sub>2</sub> Separation, *NANOTR-16*, 5-8 September 2022, Ankara, TURKEY | **Oral** Presentation.
- 37) M. DOĞANCI, **S. VELIOĞLU**, Binary CO<sub>2</sub>/H<sub>2</sub> Separation Performance of MXenes under Different Adsorption Processes: High-throughput Computational Screening, *NANOTR-16*, 5-8 September 2022, Ankara, TURKEY | **Oral** Presentation.
- 38) S. Kürklü Kocaoğlu, A. Güvensoy-Morkoyun, C. Yıldırım, **S. Velioglu**, Ş. B. Tantekin-Ersolmaz, Functionalized Carbon Nanotube Embedded Thin Film Nanocomposite Membranes for Desalination, *NANOTR-16*, 5-8 September 2022, Ankara, TURKEY | **Oral** Presentation.

- 39) M. DOĞANCI, S. VELIOĞLU, Computational Investigation of MXene Family for Different CO<sub>2</sub>/H<sub>2</sub> Mixture Adsorption Processes: VSA, PSA, TSA, VTSA, and PTSA, **AICHE Annual Meeting-2022**, November 13-18, 2022, Phoenix, AZ, USA | **Oral** Presentation.
- 40) Janakiram Saravanan, Ahmadi Mahdi, **Velioglu Sadiye**, Lindbråthen Arne, Deng Liyuan, Simultaneous GHG removal from wet CO<sub>2</sub> streams using novel composite membranes, **Euromembrane 2022**, November 20-24, 2022, Naples, Italy | **Oral** Presentation.
- 41) Aysa Güvensoy Morkoyun, **Sadiye Velioglu**, Göktuğ Ahunbay, Birgül Tantekin Ersolmaz, Aquaporin-inspired functionalization of carbon nanotubes: Computational and experimental assessment of their desalination performance, **MEMTEK 2023**, October 17-19, 2023, Istanbul, Turkiye | **Oral** Presentation.
- 42) Sirin Massoumlari, Melih Doğanç, **Sadiye Velioglu**, Revealing membrane-based H<sub>2</sub>/CO<sub>2</sub> separation performances of MXene family via molecular simulations, **MEMTEK 2023**, October 17-19, 2023, Istanbul, Turkiye | **Oral** Presentation.
- 43) **Sadiye Velioglu**, Tuğba Baysal, Aysa Güvensoy Morkoyun, Göktuğ Ahunbay, Birgül Tantekin Ersolmaz, D. Bezgin, Victoria Ryzhikh, A. Kuznetsov, Novel high-free volume polymeric membranes for separation of CO<sub>2</sub> from natural gas, **MEMTEK 2023**, October 17-19, 2023, Istanbul, Turkiye | **Oral** Presentation.
- 44) Eyüp Yazkan, **Sadiye Velioglu**, "The effect of number of the metal layer in MXene membranes on CO<sub>2</sub>/CH<sub>4</sub> separation performances, **MEMTEK 2023**, October 17-19, 2023, Istanbul, Turkiye | **Oral** Presentation.

#### NATIONAL CONFERENCE PRESENTATIONS

- 1) Halitoğlu S., Tantekin-Ersolmaz S. B., Kopoliimid membran malzemelerinin gaz geçirgenliklerinin grup katkısı yöntemi ile teorik olarak hesaplanması, **7. Ulusal Kimya Mühendisliği Kongresi**, 5-8 September 2006, Eskisehir | **Poster** Presentation.
- 2) Halitoğlu S., Ahunbay M. G., Tantekin-Ersolmaz S. B., Poliimid Membranlarda Gaz Adsorpsiyonunun Moleküler Düzeyde Modellenmesi, **8. Ulusal Kimya Mühendisliği Kongresi**, 26-29 August 2008, Malatya | **Oral** Presentation.
- 3) Halitoğlu S., Ahunbay M. G., Tantekin-Ersolmaz S. B., **8. Kimyasal Fizik Kongresi**, 24-25 April 2008, Istanbul | **Poster** Presentation.
- 4) Halitoğlu S., Tantekin-Ersolmaz S. B., Ahunbay M. G., Screening Copolyimide Gas Separation Membranes via Molecular Simulation, **5. Ulusal Nanobilim ve Nano Teknoloji Konferansı**, 8-12 June 2009, Eskisehir | **Poster** Presentation.
- 5) S. Velioglu, M. G. Ahunbay, S. B. Tantekin-Ersolmaz, Screening Copolyimide Gas Separation Membranes via Molecular Simulation, **EMCC-6**, 7-12 March 2010, Antalya | **Poster** Presentation.
- 6) Velioglu S., Ahunbay M. G., Tantekin-Ersolmaz S. B., Sülfon Grubu İçeren Kopoliimid Membranlarda CO<sub>2</sub> Plastizasyonunun İncelenmesi, **10. Ulusal Kimya Mühendisliği Kongresi**, Istanbul, 3-6 September 2012, Istanbul | **Oral** Presentation.
- 7) Velioglu S., Ahunbay M. G., Tantekin-Ersolmaz S. B., Poliimid Gaz Ayırma Membranlarının Plastizasyon Direncinin Moleküler Simülasyon Yöntemleriyle Belirlenmesi, **11. Ulusal Kimya Mühendisliği Kongresi**, 2-5 September 2014, Eskisehir | **Oral** Presentation.



- 8) K. Özgür, S. Kürklü, **S. Velioğlu**, Ş. Bi. Tantekin-Ersolmaz, Poliamid/KNT İnce Film Nanokompozit Desalinasyon Membrani Üretimi ve Karakterizasyonu, *12. Ulusal Kimya Mühendisliği Kongresi*, 23-26 August 2016, Izmir | **Oral** Presentation.
- 9) M. Balçık, **S. Velioğlu**, M. G. Ahunbay, B. Tantekin Ersolmaz, Sülfon Grubu İçeren Kopoliimidlerin Yüksek Basınçta CO<sub>2</sub> Kaynaklı Plastizasyonu, *12. Ulusal Kimya Mühendisliği Kongresi*, 23-26 August 2016, Izmir | **Oral** Presentation.
- 10) A. Güvensoy, G. Altuntaş, **S. Velioğlu**, Ş. B. Tantekin-Ersolmaz, İnce Film Kompozit Desalinasyon Membrani Özelliklerine Destek Tabakası Yapısının Etkisi, *12. Ulusal Kimya Mühendisliği Kongresi*, 23-26 August 2016, Izmir | **Poster** Presentation.
- 11) M. Ahmadi, E. Taş, **S. Velioğlu**, Ç. Atalay-Oral, A. Sirkecioğlu, M. G. Ahunbay, Ş. B. Tantekin-Ersolmaz, Stronsiyum Temelli Metal Organik Kafeslerle Karbon Dioksit Tutumu, *12. Ulusal Kimya Mühendisliği Kongresi*, 23-26 August 2016, Izmir | **Poster** Presentation.
- 12) **S. Velioğlu**, Nanomaterials for Membrane-Based Separation Applications, Webinar of "Nanomaterials Toward Energy, Water Treatment and Medical Applications" March 2021, Kocaeli | **Oral** Presentation.
- 13) F. İncehasan, **S. Velioğlu**, Elucidation of Drug Recovery Performance of MXene-based Membranes via Molecular Dynamics Simulation, *Lisansüstü Araştırmalar Sempozyumu 2021 (Çevrimiçi)*, 10-11 January 2021, Kocaeli | **Poster** Presentation.
- 14) Tuğba Baysal, Aysa Güvensoy-Morkoyun, **Sadiye Velioğlu**, Göktuğ Ahunbay, Şerife Birgül Ersolmaz, Denis Bezgin, Victoria Ryzhikh, Alexander Kuznetsov, Yüksek Serbest Hacimli Özgün Polimer Membran Yapıların Doğal Gazdan CO<sub>2</sub> Ayrımı için İncelenmesi, *15. Ulusal Kimya Mühendisliği Kongresi*, 04-07 September 2023, Çanakkale | **Oral** Presentation.
- 15) Tuğba Baysal, Aysa Güvensoy-Morkoyun, **Sadiye Velioğlu**, Şerife Birgül Ersolmaz, Organik Çözücü ile Nanofiltrasyon Membrani Performans Tahmini için Özgün Bir Moleküler Simülasyon Yaklaşımı, *15. Ulusal Kimya Mühendisliği Kongresi*, 04-07 September 2023, Çanakkale | **Oral** Presentation.
- 16) Şirin Massoumıları, **Sadiye Velioğlu**, Yüksek Verimli Hesaplamalı Tarama Yöntemi ile MXene Ailesinin CO<sub>2</sub> Yakalama Performansının ve Ara Katman Mesafesi Etkisinin Araştırılması, *15. Ulusal Kimya Mühendisliği Kongresi*, 04-07 September 2023, Çanakkale | **Oral** Presentation.

## SKILLS and COMPETENCIES

<b>Instrumental analysis</b>	Scanning Electron Microscopy (SEM) (JEOL JSM-6390LV)   Intelligent Gravimetric Analyser (IGA) (Hiden Isochema, UK)   Fourier Transform Infrared Spectroscopy (Perkin-Elmer Spectrum One)   Thermo-Gravimetric Analysis (TGA) (Perkin-Elmer Diamond TG/DTA)   Differential Scanning Calorimetry (DSC) (Perkin-Elmer 4000 Series)   Dynamic Mechanical Analysis (DMA) (Perkin-Elmer Diamond)   Gel Permeation Chromatography (GPC)   Constant-volume variable-pressure single and mixed gas permeability measurements.
<b>Computational Skills</b>	Computer Operating Systems: MS Office, Linux, Windows   Programming Languages: Fortran, C, Matlab   Chemical Engineering Design Program: ChemCad,   Molecular Simulation Programs: Materials Studio, LAMMPS, VMD, Packmol, Raspa.
<b>Language Skills</b>	Turkish: Mother tongue,   English: Advanced (YÖKDİL: 93.750).