

Hilal Ezgi Toraman

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Professional Preparation:

Middle East Technical University	Ankara, Turkey	Chem. Engineering	B. S., 2010
Middle East Technical University	Ankara, Turkey	Chem. Engineering	M. S., 2012
Ghent University	Ghent, Belgium	Chem. Engineering	Ph. D., 2016
University of Delaware	Newark, DE	Chem. Engineering	2017-2019

Appointments:

2019-current	Assistant Professor, Virginia S. and Philip L. Walker Faculty Fellow, John and Willie Leone Family Department of Energy and Mineral Engineering, The Pennsylvania State University
2019-current	Assistant Professor, Department of Chemical Engineering, The Pennsylvania State University
2019-current	Co-funded faculty member, The Institutes of Energy and the Environment, The Pennsylvania State University
2017-2019	Post-doctoral researcher, Delaware Energy Institute, Department of Chemical and Biomolecular Engineering, University of Delaware; Advisor: Dion Vlachos
2012 – 2016	PhD researcher, Laboratory for Chemical Technology, Department of Chemical Engineering, Ghent University; Advisors: Kevin Van Geem and Guy Marin
2010 – 2012	Research and teaching assistant, Department of Chemical Engineering and Graduate School of Natural and Applied Sciences, Middle East Technical University

Awards and Honors

- Research funding from recent grants (as the lead principal investigator) over \$5.3 Million.
- Toraman, H.E. (Lead Principal Investigator), "Design for Recyclability Assessing the Impact of Heteroatoms in Mixed Plastic Waste Streams on Pyrolysis Processes".
- Toraman, H. E. (Lead Principal Investigator), "Chemical Recycling of Mixed PET/Polyolefin Streams Through Sequential Pyrolysis and Catalytic Upgrading," Sponsored by The REMADE Institute, DOE Advanced Manufacturing Institute.
- Toraman, H. E. (Co-Principal Investigator), "Consortium for Cultivating Human And Naturally reGenerative Enterprises (C-CHANGE)," Sponsored by USDA-NIFA.
- Toraman, H.E. (Lead Principal Investigator), "Development of Data Mining Tools and an Open Source Web-Based Data Platform to Support the Sustainable Development of Plastic Recycling", ICDS Seed Grant.
- Virginia S. and Philip L. Walker, Jr. Faculty Fellowship, Penn State University.
- American Chemical Society (ACS) Energy and Fuels Division (ENFL) Early Career Investigator Spotlight Symposium Lecture, March 2023, Indianapolis, IN.
- North American Symposium for Chemical Reaction Engineering (NASCRE) 4 Travel Award, Ghent University Graduate Research Fellow, Belgium, Scientific and Technological Research Council of Turkey (TUBITAK) personal scholarship for M.Sc. study.

Teaching Experience

- Penn State University: Instructor for EGEE 464: Energy Design Project (Spring 20-23), EGEE/CHE 439: Alternative Fuels from Biomass Sources (Spring 20, Fall 21-22), CHE/EME 597: Sustainable Chemical Conversion for Non-Traditional Feedstocks (Spring 22-23)
- Currently (co-)advising and mentoring 18 graduate students, postdocs, and undergraduate students
- University of Delaware: Guest lecturer for Applied Chemical Kinetics (2018) and Special Topics in Energy (2019)

Major Professional Activities, Memberships and Services

- Elected Director for the AIChE Catalysis and Reaction Engineering Division and Elected President of Pittsburgh-Cleveland Catalysis Society (PCCS)
- Organized a symposium on Chemical Deconstruction and Upcycling of Polymer Waste for American Chemical Society (ACS) Fall 2022 National Meeting as part of the Sustainable Polymers: A Multidisciplinary Challenge and Annual 2022 Pittsburgh-Cleveland Catalysis Society (PCCS) Symposium
- Participating faculty to host STEM K-12 teachers and undergraduate students as part of the Center for Science and the Schools (CSATS) program, NASA Pennsylvania Space Grant Consortium (PSGC) PSU Undergraduate Research Internship Program, Schreyer Honors College (SHC), and both Chemical Engineering and Energy and Mineral Engineering's summer research programs
- Chair of the Chemical Recycling of Waste Plastics sessions at the 2021-2022 Annual AIChE meeting, chair of the Catalytic Upcycling of Waste Plastic at the 2020 Annual AIChE meeting, Chairs of the Developments in Catalytic Conversion to Chemicals and Catalysis for Biomass Upgrading I: Reaction Fundamentals sessions at the 2019 Annual AIChE meeting
- International Technical Committee Member for 2020 International Conference on Oil, Gas and Coal Technology (ICOGCT 2020)
- Member of the International Editorial Board for Fuel Communications and ACS Engineering Au
- Invited guest editor for Fuel Communications for the special issue on Chemical Recycling of Plastics: No More Waste, Member of the Sustainability Committee at the College of Earth and Mineral Sciences related to research activities

Publications

Summary: 16 A1 publications (google scholar sum of times cited: 518 and h-index: 11) and 25 oral/poster presentations and invited talks at national/international conferences/universities.

Publications

Latest A1 Publications

- Okonsky, S.T., Krishna, J.V.J, **Toraman, H.E.** 2022. Reaction Chemistry & Engineering, 7, pp.2175-2191
- Dong, Q., Yao, Y., Cheng, S., Alexopoulos, K., Gao, J., Srinivas, S., Wang, Y., Pei, Y., Zheng, C., Brozena, A.H., Zhao, H., Wang, X., **Toraman, H.E.**, Yang, B., Kevrekidis, I.G., Ju, Y., Vlachos, D.G., Liu, D., & Hu, L. 2022. Nature, 605, pp.470-476.
- Perez, B.A., Krishna, J.V.J, **Toraman, H.E.** 2022. In Advances in Chemical Engineering 60: Towards Circular Economy: Closing the Loop with Chemical Recycling of Solid Plastic Waste. Moscatelli, D., Pelucchi, M., Ed. Academic Press (Accepted)
- Bozkurt, O., Okonsky, S.T., Alexopoulos, K., **Toraman, H.E.** 2022. In Advances in Chemical Engineering 60: Towards Circular Economy: Closing the Loop with Chemical Recycling of Solid Plastic Waste. Moscatelli, D. Pelucchi, M., Ed. Academic Press (Accepted)

- **Toraman, H.E.**, Alexopoulos, K., Oh, S.C., Cheng, S., Liu, D., Vlachos, D., 2021. Chemical Engineering Journal, 420, pp. 130493.
- SriBala, G., **Toraman, H.E.**, Symoens, S., Déjardin, A., Pilate, G., Boerjan, W., Ronsse, F., Van Geem, K.M. and Marin, G.B., 2019. Computational and Structural Biotechnology Journal, 17, pp.599-610.
- **Toraman, H.E.**, Abrahamsson, V., Vanholme, R., Van Acker, R., Ronsse, F., Pilate, G., Boerjan, W., Van Geem, K.M. and Marin, G.B., 2018. 129, pp.101-111.
- **Toraman, H.E.**, Franz, K., Ronsse, F., Van Geem, K.M. and Marin, G.B., 2016. Journal of Chromatography A, 1460, pp.135-146.
- Negahdar, L., Gonzalez-Quiroga, A., Otyuskaya, D., **Toraman, H.E.**, Liu, L., Jastrzebski, J.T., Van Geem, K.M., Marin, G.B., Thybaut, J.W. and Weckhuysen, B.M., 2016. ACS Sustainable Chemistry & Engineering, 4(9), pp.4974-4985.
- **Toraman, H.E.**, Vanholme, R., Borén, E., Vanwonterghem, Y., Djokic, M.R., Yildiz, G., Ronsse, F., Prins, W., Boerjan, W., Van Geem, K.M. and Marin, G.B., 2016. Bioresource technology, 207, pp.229-236.
- Yildiz, G., Ronsse, F., Vercruyssen, J., Daels, J., **Toraman, H.E.**, van Geem, K.M., Marin, G.B., Van Duren, R. and Prins, W., 2016. Fuel Processing Technology, 144, pp.312-322.
- **Toraman, H.E.**, Dijkmans, T., Djokic, M.R., Van Geem, K.M. and Marin, G.B., 2014. Journal of Chromatography A, 1359, pp.237-246.
- Yildiz, G., Lathouwers, T., **Toraman, H.E.**, van Geem, K.M., Marin, G.B., Ronsse, F., van Duren, R., Kersten, S.R. and Prins, W., 2014. Energy & Fuels, 28(7), pp.4560-4572.
- Bahcegul, E., **Toraman, H.E.**, Erdemir, D., Akinalan, B., Ozkan, N. and Bakir, U., 2014. RSC Advances, 4(64), pp.34117-34126.
- Bahcegul, E., Akinalan, B., **Toraman, H.E.**, Erdemir, D., Ozkan, N. and Bakir, U., 2013. Bioresource Technology, 149, pp.582-585.
- Bahcegul, E., **Toraman, H.E.**, Ozkan, N. and Bakir, U., 2012. Bioresource Technology, 103(1), pp.440-445.

Selected Latest Oral Presentations

- **Toraman, H.E.**, Fundamental Understanding of Interaction Effects in Mixed Plastic Waste Pyrolysis
- 2022 ACS Fall Meeting, Chicago, US, August 21, 2022 (**Invited talk**).
- **Toraman, H.E.**, How to Transform Plastic Waste into a 21st Century Resource by Combining Experiments, Data Science and Theory, Material Day 2021 of Penn State University (online), October 13, 2021 (**Invited talk**).
- **Toraman, H.E.**, How to Transform Waste into a 21st Century Resource by Combining Experiments, Data Science and Theory, 2021 Annual Meeting of Pittsburgh-Cleveland Catalysis Society, October 15, 2021, Pittsburgh, PA, USA (**Invited talk**).
- **Toraman, H.E.**, Direct Conversion of Methane to Fuels and Chemicals, 2021 2nd International Conference on Oil, Gas and Coal Technology (ICOGCT 2021), July 15, switched to Webinar due to COVID (**Invited talk**).
- **Toraman, H. E.** (September 3, 2020). "Chemical Recycling of Natural and Synthetic Polymers into Fuels and Chemicals," Invited Virtual Seminar to 3M Technical Community, 3M, (Invited talk).