# KUTAY BERK SEZGINEL

University of Pittsburgh, Pittsburgh, PA

+1 (619) 576 64 78 | kbs37@pitt.edu

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| **EDUCATION** |  |

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| ***PhD candidate in Chemical & Petroleum Engineering*** | Sep 2015 – Present |
| University of Pittsburgh, Swanson School of Engineering (GRE: 175Q, 153V) | Pittsburgh, PA |
| Adviser: Dr. Christopher E. Wilmer |  |
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| ***M.S. in Chemical & Biological Engineering*** | Sep 2013 – June 2015 |
| Koc University, Graduate School of Science and Engineering | Istanbul, Turkey |

* Dissertation Title: “Computational and Experimental Investigation of Methane Adsorption in Pure and Ionic Liquid Modified Metal-Organic Frameworks”

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| ***B.S. in Chemical & Biological Engineering*** | Sep 2008 – June 2013 |
| Koc University, School of Engineering, *Energy and Environmental Engineering Track* | Istanbul, Turkey |
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## RESEARCH EXPERIENCE

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| ***Graduate Research Assistant*** | Sep 2015 – Present |
| Hypothetical Materials Lab (WilmerLab), University of Pittsburgh | Pittsburgh, PA |

* Developing new computational methods for the discovery and design of novel functional materials. Studying on wide range of materials such as metal-organic frameworks, supramolecular structures, and molecular machines.
* Collaborating with faculty and fellow graduate students across departments to pursue experimental synthesis of *hypothetical* structures discovered by these computational tools.

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| ***Graduate Research Assistant*** | Sep 2013 – June 2015 |
| Nanomaterials, Energy and Molecular Modelling Research Group, Koc University | Istanbul, Turkey |

* High-throughput screening of porous materials (MOFs) for gas storage and separation applications using grand canonical Monte Carlo (GCMC) and Molecular Dynamics (MD) simulations.
* Investigated the structural and thermodynamic properties of MOFs to understand methane adsorption mechanism and constructed models to predict natural gas storage of MOFs at various conditions.

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| ***Graduate Research Assistant*** | Sep 2013 – June 2015 |
| Koc University Tupras Energy Center (KUTEM) | Istanbul, Turkey |

* Post-synthetic modifications of porous materials using ionic liquids to improve gas storage/selectivity performances. Characterization by TGA, XRD, FT-IR, surface area and gas adsorption measurements.

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| ***Visiting Research Assistant*** | Feb 2012 - July 2012 |
| Energy Materials & Devices Research Group, Eindhoven University of Technology | Eindhoven, Netherlands |

## PUBLICATIONS

## Sezginel, K.B., Feng T., Wilmer, C.E. (2017). Discovery of Hypothetical Hetero-Interpenetrated MOFs with Arbitrarily Dissimilar Topologies and Unit Cell Shapes. CrystEngComm 19(31), 4497-4504. (futured on front cover)

## Sezginel, K. B., Keskin, S., & Uzun, A. (2016). Tuning the Gas Separation Performance of CuBTC by Ionic Liquid Incorporation. Langmuir, 32(4), 1139-1147.

## Basdogan, Y., Sezginel, K. B., & Keskin, S. (2015). Identifying highly selective metal organic frameworks for CH4/H2 separations using computational tools. Industrial & Engineering Chemistry Research 54(34), 8479-8491.

## Sezginel, K. B., Uzun, A., & Keskin, S. (2015). Multivariable linear models of structural parameters to predict methane uptake in metal–organic frameworks. Chemical Engineering Science, 124, 125-134.

## SKILLS

***Language*** English (Advanced) TOEFL iBT (110/120), Dutch (Beginner), Turkish (Native)

***Software***  Advanced in Python, Javascript, Matlab and computational chemistry software such as RASPA, Lammps, Orca, Materials Studio, Aspen HYSY. Experienced in big data analysis and high-throughput screening.