Nicholas J. Corrente, PhD

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APPOINTMENTS

Assistant Teaching Professor: Rutgers University – New Brunswick, NJ, USA — Fall 2025 - Present
Teaching Instructor: Rutgers University – New Brunswick, NJ, USA — Fall 2024 - Summer 2025
Lecturer: Rutgers University – New Brunswick, NJ, USA — Summer 2022 - Summer 2024

EDUCATION

Rutgers University – New Brunswick, NJ, USA
PhD – Chemical and Biochemical Engineering, Advisor: Alexander V. Neimark — December 2024
Master of Science – Chemical Engineering — May 2023

New Jersey Institute of Technology – Newark, NJ, USA — May 2019
Bachelor of Science – Chemical Engineering

Seton Hall University – South Orange, NJ, USA — August 2016
Bachelor of Science – Chemistry

AWARDS

Teaching
2024-2025 Rutgers University EGC Professor of the Year Award — Spring 2025
2023-2024 Rutgers University CBE Outstanding Faculty Award — Spring 2024
2023-2024 Rutgers University EGC Professor of the Year Award — Spring 2024
2022-2023 Rutgers University EGC Professor of the Year Award — Spring 2023
2023 Rutgers University CBE Teaching Assistant Award — Spring 2023

Research
AIChE Separations Division Graduate Student Research Award for Adsorption & Ion Exchange — Fall 2025
2024-2025 Rutgers University CBE-GSO Researcher-Scholar Award — Spring 2025
2023-2024 Rutgers University CBE-GSO Researcher-Scholar Award — Spring 2024
Rutgers University Department of Chemical and Biochemical Engineering Venkat Fellowship — Fall 2023 - Spring 2024
CPM-9 First Place Best Poster Award — Spring 2024
2023 Rutgers University SGS Travel Grant — Spring 2023
2022 DOE/NSF Travel Grant — Spring 2022
2022 Rutgers University SGS Travel Grant — Spring 2022
2021 International Adsorption Society Best Poster Award — Fall 2021
2020 International Adsorption Society Travel Grant — Spring 2020

TEACHING EXPERIENCE

Assistant Teaching Professor: Rutgers University – New Brunswick, NJ, USA
(14:155:201) Chemical Engineering Material and Energy Balances — Fall 2025
Responsibilities: Developing and delivering course curriculum.
(14:155:307) Computational Methods for Chemical Engineers — Fall 2025
Responsibilites: Developing and delivering course curriculum.
(14:440:101) Introduction to Data-Driven Design for Engineering Applications — Fall 2025
Responsibilities: Primary CBE lecturer and point of contact

Teaching Instructor: Rutgers University – New Brunswick, NJ, USA
(14:155:208) Chemical Engineering Thermodynamics I — Spring 2025
Responsibilities: Developing and delivering course curriculum.
(14:155:201) Chemical Engineering Material and Energy Balances — Fall 2024
Responsibilities: Developing and delivering course curriculum.
(14:155:307) Computational Methods for Chemical Engineers — Fall 2024
Responsibilites: Developing and delivering course curriculum.
(14:440:101) Introduction to Data-Driven Design for Engineering Applications — Fall 2024
Responsibilities: Primary CBE lecturer and point of contact

Lecturer: Rutgers University – New Brunswick, NJ, USA
(14:155:208) Chemical Engineering Thermodynamics I — Spring 2024, Summer 2024
Responsibilities: Developing and delivering course curriculum.
(14:155:201) Chemical Engineering Material and Energy Balances — Fall 2023, Summer 2024

Responsibilities: Developing and delivering course curriculum.

Instructor: Rutgers University – New Brunswick, NJ, USA
(14:155:208) Chemical Engineering Thermodynamics I — Spring/Summer 2023, Summer 2022
Responsibilities: Developing and delivering course curriculum.

Member/Moderator: International Adsorption Society Education Committee — Spring 2021 - Present
Responsibilities: Moderating monthly webinar series, preparing tutorial papers for the journal *Adsorption*.

Guest Lecturer: New Jersey Institute of Technology – Newark, NJ, USA — Spring 2021
Course: Python Programming for Chemical Engineers
Responsibilities: Delivered one lecture on python for thermodynamic calculations.

Teaching Assistant: Rutgers University – New Brunswick, NJ, USA
Courses:

- (16:155:511) Advanced Chemical Engineering Thermodynamics – Fall 2022
- (14:155:208) Chemical Engineering Thermodynamics I – Spring 2021
- (14:155:307) Computational Methods in Chemical Engineering – Fall 2020

RESEARCH EXPERIENCE

PhD Candidate — Fall 2019 - Fall 2024
Department of Chemical and Biochemical Engineering– Rutgers University
Coupling Structural, Adsorption, and Mechanical Properties of Nanoporous Carbons Using Advanced Molecular Simulation Methods
Advisor: Prof. Alexander V. Neimark

NSF INTERN — September 2021 - August 2023
ExxonMobil Technology and Engineering Company – Annandale, NJ, USA
Advisor: Dr. Peter I. Ravikovitch

Provost Summer Research Fellowship — Summer 2018
New Jersey Institute of Technology

Undergraduate Research Assistant — January 2018 - August 2019
Computational Laboratory for Porous Materials – New Jersey Institute of Technology
Advisor: Prof. Gennady Y. Gor

PUBLICATIONS

C. Schlumberger, L. Sandner, J. Xu, **N.J. Corrente**, A.V. Neimark, M. Thommes. Reliable Textural Characterization of Solvated Nanoporous Materials By NMR Relaxometry – Experiment and Molecular Dynamic Simulation. In Preparation.

J. Soellner, **N.J. Corrente**, S. Parashar, A.V. Neimark, M. Thommes. Development and Application of an Advanced Percolation Model for Pore Network Characterization By Physical Adsorption. In Preparation.

E. Schley, **N.J. Corrente**, S. Stock, O. Paris, A.V. Neimark. Hydrogen as a Molecular Probe for Nanopore Structure Characterization. In Preparation.

S. Stock, **N.J. Corrente**, M. Seyffertitz, M. Valentin Rauscher, S. Zeiler, N. Kostoglou, B. Demé, N.A. Marks, A.V. Neimark, O. Paris (2025). On the supercritical adsorption of molecular hydrogen and deuterium in microporous carbons. Accepted in *Carbon*. Preprint available at SSRN. DOI: https://dx.doi.org/10.2139/ssrn.5181991

N.J. Corrente, A.V. Neimark (2025). From Slit Pores to 3D Frameworks: Advances in Molecular Modeling of Adsorption in Nanoporous Carbons. *Adv Colloid Interface Sci*. DOI: 10.1016/j.cis.2025.103502

N.J. Corrente, S. Parashar, R. Gough, E.L. Hinks, P.I. Ravikovitch, A.V. Neimark (2025). Modeling Structural Flexibility in 3D Carbon Models: A Hybrid MC/MD Approach to Adsorption-Induced Deformation. *Carbon*. DOI: 10.1016/j.carbon.2025.120160

A.V. Neimark, **N.J. Corrente**, F.X. Coudert (2025). Phase Transformations in MOFs Induced by Adsorbate Exchange. *Langmuir*. DOI: 10.1021/acs.langmuir.4c04626

S. Parashar, **N.J. Corrente**, A.V. Neimark (2025). Unveiling Non-Monotonic Deformation of Flexible MOFs during Gas Adsorption: From Contraction and Softening to Expansion and Hardening. *J Colloid Interface Sci*. DOI: 10.1016/j.jcis.2025.01.228

P. Kowalczyk, S. Furmaniak, A.P. Terzyk, **N.J. Corrente** A.V. Neimark (2024). Surface Area and Porosity Analysis in Nanoporous Carbons by Atomistic Pore Domain Model. *Carbon*. DOI: 10.1016/j.carbon.2024.119510

N.J. Corrente, E.L. Hinks, A. Kasera, J. Liu, A.V. Neimark (2024). Deformation of Nanoporous Carbons Induced By Multicomponent Adsorption: Insight from the SAFT-DFT Model. *J Phys Chem C*. Selected cover article. DOI: 10.1021/acs.jpcc.4c00833

F. Vallejos-Burgos, C. de Tomas, **N.J. Corrente**, K. Urita, S. Wang, C. Urita, I. Moriguchi, I. Suarez-Martinez, N. Marks, M.H. Krohn, R. Kukobat, A.V. Neimark, Y. Gogotsi, K. Kaneko (2023). 3D Nanostructure Prediction of Porous Carbons via Gas Adsorption. *Carbon*, 215, 11843. DOI: 10.1016/j.carbon.2023.118431

N.J. Corrente, E.L. Hinks, A. Kasera, P.I. Ravikovitch, A.V. Neimark (2022). Modeling Adsorption of Simple Fluids and Hydrocarbons on Nanoporous Carbons. *Carbon*, 197, 526-533. DOI: 10.1016/j.carbon.2022.06.071

N.J. Corrente, K. Zarębska, A.V. Neimark (2021). Deformation of Nanoporous Materials in the Process of Binary Adsorption: Methane Displacement by Carbon Dioxide from Coal. *J Phys Chem C*, 125(38), 21310-21316. DOI: 10.1021/acs.jpcc.1c07363

N.J. Corrente, C. D. Dobrzanski, G. Y. Gor (2020). Compressibility of Supercritical Methane in Nanopores: A Molecular Simulation Study. *Energy Fuels*, 34(2), 1506-1513. DOI: 10.1021/acs.energyfuels.9b03592

C. D. Dobrzanski, **N. J. Corrente**, G. Y. Gor (2020). Compressibility of Simple Fluid in Cylindrical Confinement: Molecular Simulation and Equation of State Modeling. *Ind Eng Chem Res*, 59(17), 8393-8402. DOI: 10.1021/acs.iecr.0c00693

INVITED TALKS

N.J. Corrente, E.L. Hinks, A. Kasera, R. Gough, A.V. Neimark. *Applications of 3D Amorphous Carbon Molecular Models for Adsorption and Mechanical Property Predictions*. New Jersey Institute of Technology – 12 April 2024. Newark, NJ.

N.J. Corrente, K. Zarębska, A.V. Neimark. D*eformation of Nanoporous Materials in the Process of Binary Adsorption*. 2nd Annual International Adsorption Society Webinar Series – 17 August 2021.

PRESENTATIONS

N.J. Corrente, S. Parashar, R. Gough, E.L. Hinks, A.V. Neimark. *Coupling Adsorption and Mechanical Properties of Nanoporous Carbon Using 3D Molecular Models*. 2024 AIChE Annual Meeting – 30 October 2024. San Diego, CA.

N.J. Corrente, E.L. Hinks, A. Kasera, R. Gough, P.I. Ravikovitch, A.V. Neimark. *Applications of 3D Amorphous Carbon Molecular Models for Adsorption and Mechanical Property Predictions*. CPM-9 – 21 May 2024. Delray Beach, FL.

N.J. Corrente, E.L. Hinks, A. Kasera, R. Gough, P.I. Ravikovitch, A.V. Neimark. *Adsorption-Induced Deformation of Nanoporous Carbons with Mixtures: A Hybrid MC/MD Approach*. 2023 AIChE Annual Meeting –- 9 November 2023. Orlando, FL.

N.J. Corrente, A.V. Neimark. *Deformation of Nanoporous Carbons Induced By Multicomponent Adsorption: Insight from the SAFT-DFT Model*. 2022 AIChE Annual Meeting –- 17 November 2022. Phoenix, AZ.

N.J. Corrente, E.L. Hinks, A. Kasera, R. Gough, A.V. Neimark. *Deformation of Nanoporous Carbons in the Process of Binary Adsorption*. 2022 Fundamentals of Adsorption 14th International Conference –- 26 May 2022. Boulder, CO.

N.J. Corrente, E.L. Hinks, A. Kasera, R. Gough, A.V. Neimark. *Deformation of Amorphous Carbons in the Process of Binary Adsorption*. Otto H. York Department of Chemical and Materials Engineering 3rd Molecular Simulations Workshop –- 13 May 2022. NJIT, University Heights, Newark, NJ.

N.J. Corrente, E.L. Hinks, A. Kasera, P.I. Ravikovitch, A.V. Neimark. *Modeling Hydrocarbons Adsorption in Amorphous Nanoporous Carbonaceous Materials*. 2021 AIChE Annual Meeting –- 10 November 2021. Boston, MA.

N.J. Corrente, E.L. Hinks, A.V. Neimark. *Deformation of Amorphous Nanoporous Carbons in the Process of Methane Displacement By Carbon Dioxide*. 2021 AIChE Annual Meeting –- 9 November 2021. Boston, MA.

SERVICE TO RUTGERS UNIVERSITY

Project Consultant: A's for All (A4A)	Spring 2025
Organizer: Microtract Surface Area and Pore Characterization of Materials Workshop	Fall 2024
Director: CBE ALChemE 3D Lab	2024 - Present
Social Media Director: Rutgers University CBE CBE Undergraduate Awards Committee	Spring 2024
Organizer: CBE PhD Panel Series	2024 - Present
Faculty Host: SHE Shadow Program Chemical Engineering Workshop	Spring 2023, Spring 2024
Faculty Advisor: American Institute of Chemical Engineers Student Chapter, Rutgers University	2023 - Present
Rutgers University Aresty Research Mentor	2022 - Present
Rutgers University J.J. Slade Scholars Research Mentor	2022 - 2023
Rutgers University REU Research Mentor	Summer 2021

SERVICE TO THE PROFESSION

Member: International Adsorption Society Education Committee — 2021 - Present
Member: AIChE Area 2E — 2021 - Present
Session Chair / Co-Chair for AIChE Area 2E molecular modeling sessions — 2020 - Present
Secretary / Website Developer: Characterization of Porous Materials Workshop Series — 2019 - Present

- Responsible for coordination of logistics, abstract submissions, and dissemination of information for the international conference series.

Member: Omega Chi Epsilon Eta Chapter — 2019 - Present

SERVICE TO THE COMMUNITY

Team Leader: Pursells Pack, New Jersey Pancreatic Cancer Action Network — 2013 - Present
Lead Advisor: Venture Crew 890, Patriots' Path Council, Boy Scouts of America — 2015 - 2025
Eagle Scout Advisor: Troop 72, Patriots' Path Council, Boy Scouts of America — 2018 - Present
Publicity Chair: Fishawack District, Patriots' Path Council, Boy Scouts of America — 2017 - 2019