

Yiling Nan

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EDUCATION

Ph.D. in Civil and Environmental Engineering <i>University of Alberta</i> , Edmonton, Canada Supervisor: Dr. Zhehui (Charlie) Jin	Aug. 2018 – Jun. 2022
Master in Chemistry and Biotechnology <i>The University of Tokyo</i> , Tokyo, Japan Supervisor: Dr. Takuzo Aida	Aug. 2016 – Aug. 2018
Bachelor in Chemical Engineering <i>Tsinghua University</i> , Beijing, China	Aug. 2012 – Jul. 2016

EMPLOYMENT

Postdoc Research Fellow in School of Pharmacy <i>University of Maryland Baltimore</i> , Baltimore, US Supervisor: Dr. Alexander MacKerell	Aug. 2022 – Present
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AWARDS

➤ Donald Lougheed Engineering Graduate Scholarship, University of Alberta	2021
➤ Doctoral Recruitment Scholarship, University of Alberta	2018
➤ Nagashima Scholarship, The University of Tokyo	2017-2018
➤ SK Group Scholarship, Tsinghua University	2012-2016

JOURNAL PUBLICATIONS

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- M. Zhang, **Y. Nan**, Y. Lu, Q. You, Z. Jin, CO₂-responsive surfactant for oil-in-water emulsification and demulsification from molecular perspectives, *Fuel*, **2023**, 331 (2): 125773
 - Y. Fujisawa, **Y. Nan**, A. Asano, Y. Yanagisawa, K. Yano, Y. Itoh, T. Aida, Blending to Make Nonhealable Polymers Healable: Nanophase Separation Observed by CP/MAS 13C NMR Analysis, *Angew. Chem. Int. Ed.*, **2022**, e202214444
 - **Y. Nan**, Z. Jin, Effect of Alcohol Tail Length on Aggregate Behavior of Alcohol and AOT at the Water-scCO₂ Interface: MD Simulation Study, Book, *Nanostructured Materials for Sustainable Energy: Design, Evaluation, and Applications*, Chapter 10, pp 263-288, **2022**
 - **Y. Nan**, W. Li, Z. Jin, Molecular Dynamics Studied on Effective Surface-Active Additives: Toward Hard Water-Resistant Chemical Flooding for Enhanced Oil Recovery, *Langmuir*, **2022**, 38 (16): 4802-4811
 - **Y. Nan**, W. Li, M. Zhang, Z. Jin, Ethanol Blending to Improve Reverse-Micelle Dispersivity in Supercritical CO₂: A Molecular Dynamics Study, *J. Phys. Chem. B*, **2021**, 125 (33): 9610-9620
 - **Y. Nan**, W. Li, Z. Jin, Ion Valency and Concentration Effect on the Structural and Thermodynamic Properties of Brine-Oil Interfaces with Anionic Surfactant (SDS), *J. Phys. Chem. B*, **2021**, 125 (33): 9621-9628
 - X. Zhang*, Q. Jin*, **Y. Nan***, L. Hou, B. Li, X. Chen, Z. Jin, X. Zhang, J. Huang, and Q. Zhang, Electrolyte Structure of Lithium Polysulfides with Anti-Reductive Solvent Shells for Practical Lithium-Sulfur Batteries, *Angew. Chem. Int. Ed.*, **2021**, 60: 15503-15509 *Co-first Author
 - W. Li, **Y. Nan**, Q. You, Z. Jin, CO₂ solubility in brine in silica nanopores in relation to geological CO₂ sequestration in tight formations: Effect of salinity and pH, *Chem. Eng. J.*, **2021**, 411: 127626
 - W. Li, M. Zhang, **Y. Nan**, W. Pang, Z. Jin, Molecular Dynamics Study on CO₂ Storage in Water-Filled Kerogen Nanopores in Shale Reservoirs: Effects of Kerogen Maturity and Pore Size, *Langmuir*, **2021**, 37(1): 542-552
 - W. Li, **Y. Nan**, Z. Zhang, Q. You, Z. Jin, Hydrophilicity/Hydrophobicity Driven CO₂ Solubility in Kaolinite Nanopores in Relation to Carbon Sequestration, *Chem. Eng. J.*, **2020**, 398: 125449
 - **Y. Nan**, W. Li, Z. Jin, Roles of alcohol as a cosurfactant at brine-oil interface under a typical reservoir condition, *Langmuir*, **2020**, 36(19): 5198-5207

- W. Li, **Y. Nan**, Q. You, Q. Xie, Z. Jin, Effects of salts and silica nanoparticles on oil-brine interfacial properties under hydrocarbon reservoir conditions: A molecular dynamics simulation study, *J. Mol. Liq.*, **2020**, *305*: 112860
- X. Hu, **Y. Nan**, X. Kong, D. Lu, and J. Wu, A hybrid theoretical method for predicting electrokinetic energy conversion in nanochannels, *Phys. Chem. Chem. Phys.*, **2020**, *22(16)*: 9110-9116
- **Y. Nan**, W. Li, Z. Jin, Slip length of methane flow under shale reservoir conditions: Effect of pore size and pressure, *Fuel*, **2020**, *259*: 116237
- W. Li, **Y. Nan**, X. Wen, W. Wang, Z. Jin, Effects of Salinity and N-, S-, and O-Bearing Polar Components on Light Oil–Brine Interfacial Properties from Molecular Perspectives, *J. Phys. Chem. C*, **2019**, *123*, 38, 23520-23528
- Y. Yanagisawa, **Y. Nan**, K. Okuro, T. Aida, Mechanically robust, readily repairable polymers via tailored noncovalent cross-linking. *Science*, **2018**, *359(6371)*: 72 – 76.
- **Y. Nan**, X. Kong, J. Li, D. Lu, Non-equilibrium Molecular Dynamics Simulation of Water Flow Inside Nano-slit. *Journal of Chemical Industry and Engineering*, **2017**, *68(5)*: 1786 – 1793.

PRESENTATIONS

- **Y. Nan**, A. Mackerell; " Balancing Monoatomic Ion-Biomolecular Interactions in the Polarizable Drude Force Field", ACS Spring, Mar. 27, 2023. ([oral presentation](#))
- **Y. Nan**, Z. Jin; " Understanding the Role of Surface-Active Chemical Additives in Enhanced Oil Recovery from Molecular Perspectives", Student Seminar Series (3S) in ACS, Dec. 10, 2021. ([oral presentation](#))
- **Y. Nan**, Z. Jin; " Electrolyte Design in Li-S battery with anti-reductive solvent shell", Future energy systems 2021 research symposium. Sept. 20-24, 2021. ([oral presentation](#))
- **Y. Nan**, Z. Jin; " Effect of salt ion valency and concentration on the structural and thermodynamic properties of SDS and propanol at brine-oil interfaces from molecular perspectives", ACS Fall 2021 Virtual Conference. Aug. 22-26, 2021. ([oral presentation](#))
- **Y. Nan**, Z. Jin; " Why alcohols can improve reverse-micelle dispersity in supercritical CO₂: A molecular-level understanding", ACS Fall 2021 Virtual Conference. Aug. 22-26, 2021. ([oral presentation](#))
- **Y. Nan**, Z. Jin; " Slip Length of Methane Flow under Shale Reservoir Conditions: Effect of Pore Size and Pressure", AIChE 2020 Virtual Conference. Nov. 16-20, 2020. ([oral presentation](#))
- **Y. Nan**, Z. Jin; " Roles of Alcohol as a Cosurfactant at Brine-Oil Interface Under a Typical Reservoir Condition", AIChE 2020 Virtual Conference. Nov. 16-20, 2020. ([oral presentation](#))
- **Y. Nan**, T. Aida; " Preparation of densely hydrogen-bonded polymer blends and their healing properties", 67th SPSJ Annual. May. 2018. ([poster presentation](#))

JOURNAL REVIEWS

Geofluids

Colloids and Surfaces A: Physicochemical and Engineering Aspects

Fuel

Journal of Molecular Liquids

SPE Production & Operations

BioMed Research International

Chemical Engineering Journal