IAN C BOURG

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EDUCATION

BEng, Chemical Engineering, National Institute of Applied Sciences, Toulouse (1999).
PhD, Civil and Environmental Engineering, University of California, Berkeley (2004).

PROFESSIONAL POSITIONS

Associate Professor, Department of Civil and Environmental Engineering and High Meadows Environmental Institute, Princeton University (2022-present).
Visiting Professor, Department of Earth Planetary Sciences, University of Tokyo (2026).
Visiting Professor, Department of Civil, Environmental, and Geomatic Engineering, Swiss Federal Polytechnic Institute (ETH), Zurich (2022-2023).
Assistant Professor, Department of Civil and Environmental Engineering and High Meadows Environmental Institute, Princeton University (2015-2022).
Research Scientist (career-track), Earth Sciences Division, Lawrence Berkeley National Laboratory (2009-2014).
Postdoctoral Scholar, Earth Sciences Division, Lawrence Berkeley National Laboratory (2005-2009).

HONORS & AWARDS

Fellow, Mineralogical Society of America (2027).
SEAS Commendation for Outstanding Teaching, Princeton SEAS (2026).
SEAS Excellence in Mentoring award, Princeton SEAS (2025).
Howard B Wentz junior faculty award, Princeton SEAS (2020).
NSF CAREER Award, US National Science Foundation (2018).

PUBLICATIONS

Dr. Bourg has published one textbook, two co-edited volumes, and 77 peer-reviewed journal papers, book chapters, or comments. An additional 8 manuscripts are in review or in press. According to Google Scholar, he has an ***h*-index of 50** and is on track to receive 1,800 citations in 2026 (up from 1,300 in 2025).

PROJECTS ($6.9M since 2011)

Current Projects

Department of Energy, Office of Basic Energy Sciences, *Nanoscale Basis of the Permeability of Fine-Grained Sedimentary Rocks* (PI), $1,895,000 (2018-2027).
American Chemical Society, Petroleum Research Fund, *Coarse-Grained Simulation of Clay-Organic Aggregates on Scales of Nanometers to Micrometers* (PI), $125,000 (2026-2028).
Japan Atomic Energy Agency, *Project for Development of Technology for Geological Disposal of High-Level Radioactive Waste* (co-PI), $50,000 (2023-2028).

Completed Projects

Department of Energy, Office of Nuclear Energy, *Clay Hydration, Drying, and Cracking in Nuclear Waste Repositories* (PI), $720,000 (2022-2025). (Project suspended 3/31/2025 by the US Federal Government.)

National Science Foundation, Division of Earth Sciences, *Collaborative Research: Grain to Channel Scale Experimental and Numerical Investigation of Cohesive Sediment Transport* (co-PI), $306,000 (2022-2026) (lead PI: JQ Yang).

National Science Foundation, Division of Chemical, Bioengineering, Environmental and Transport Systems, *Adsorption of Per- and Polyfluoroalkyl Substances (PFASs) and Other Polar Organic Contaminants on Pristine and Organic-Coated Clay Mineral Surfaces* (PI), $330,000 (2019-2022).

National Science Foundation, Division of Earth Sciences, CAREER Award, *Coupled Hydrology and Mechanics of Fine-Grained Soils and Sedimentary Rocks* (PI) $400,000 (2018-2023).

BP International, *A Carbon Mitigation Initiative* (co-PI), $325,000 (2016-2021) (center director: S Pacala).

Department of Energy, Office of Basic Energy Sciences, *Center for Nanoscale Controls on Geologic CO2* (co-PI and Thurst Area Lead), $1,550,000 (2011-2018) (center director: DJ DePaolo).

Department of Energy, Office of Basic Energy Sciences, *The Effect of Salinity on Geochemical Processes in Confined Aqueous Fluids* (co-PI), $759,000 (2011-2017) (lead PI: B Gilbert).

Japan Atomic Energy Agency, *Repository Geoscience and PA Technology Development* (co-PI), $50,000 (2014).

Department of Energy, Office of Nuclear Energy, *International Technical Evaluation of Alteration Mechanisms* (co-PI), $209,000 (2011-2013).

Department of Energy, Office of Nuclear Energy, *Reactive Transport and Coupled THM Processes in Engineering Barrier Systems* (co-PI), $167,000 (2011-2013).

INVITED LECTURES

Dr. Bourg has given 111 invited lectures. These include:

University workshops or seminars: U of Miami (2026), NJIT (2026, 2024, 2019), Princeton U [2026, 2020, 2018 (× 2), 2014], Colorado Mines (2026), LBNL (2025, 2014, 2009), UC Davis (2025), TokyoTech (2024), JAEA (2024), Georgetown U (2024), Rutgers U [2024 (× 2)], U of Georgia (2024), Columbia U (2023), EAWAG (2023, 2022), U of Grenoble (2023, 2007), Texas A&M (2023), ETH Zurich (2023, 2022, 2008), U of Bern (2022), Woods Hole Oceanography Institute (2021), City College New York (2020), Northwestern U (2019), Georgia State U (2019), U of Oslo (2019), UC Irvine (2019), PNNL (2019), U of Paris-Sorbonne (2019), Temple U (2019), Purdue U (2019), Stevens Inst Technol (2018), Lamont-Doherty Earth Observatory (2018, 2016), MIT (2016, 2008), Hokkaido U (2016, 2012, 2011, 2005), Washington U in St Louis [2016 (× 2)], U of Delaware (2016), Stanford U (2014), Rensselaer Polytechnic Inst (2014), UC Berkeley [2014, 2010 (× 3)], UIUC (2012), U of Connecticut (2012), Sandia Natl Labs (2012), Carnegie Inst DC (2012), Kyoto U (2011), Penn State U (2011).

Other workshops: DARPA (2023), ExxonMobil (2021), SKB International Task Force [2014 (× 2)], Advanced Photon Source (APS) Users Meeting (2012), French Consulate in San Francisco (2012), DOE workshop on the Chemistry of Novel Isotope Effects in the Geosciences (2010), DOE workshop on Molecular Dynamics and Structure of Geofluids (2007), EU workshop on Surface Reactions & Electrical Interlayer Layer (2007).

Workshop-style conferences: Gordon Research Conference on Flow and Transport in Permeable Media (2026), Telluride Science workshops (2026), Mesilla Chemistry Workshop (2026), Gordon Research Conference on the Chemistry and Physics of Liquids (2023).

Large conferences: Biot Conference on Poromechanics (2025), International Clay Conference (2025, 2005), American Chemical Society meeting [2024, 2023, 2022, 2021 (× 3), 2020 (× 2, cancelled due to Covid), 2018, 2016 (× 3), 2015 (× 2), 2013, 2009], Goldschmidt Conference [2020, 2019, 2018, 2016, 2015 (× 2), 2011], Society of Engineering Science (2019), Swedish Chemical Society meeting (2019), Clay Minerals Society meeting [2018, 2016, 2014 (× 2)], American Chemical Society Mid-

Atlantic Regional Meeting (2017), American Geophysical Union meeting (2015), International Meeting on Clays in Natural and Engineered Barriers for Radioactive Waste Confinement (2012).

In addition to the invited lectures listed above, Dr. Bourg has presented 72 contributed papers at scientific meetings and has been a co-author on an additional 163 invited or contributed papers.

TEACHING

Courses taught

"The Surface of Water," Princeton University (2026-present).
"Introduction to Environmental Engineering," Princeton University (2015-present).
"Interfacial Waters in Natural Systems," Princeton University (2016-present).
"The Environmental Nexus," Princeton University (2017-2021).
"Carbon Capture and Sequestration," UC Berkeley (2011-2014).

Undergraduate Research Advising

Since 2015, Dr. Bourg has mentored 51 undergraduate students in the context of 27 full-year senior theses, 17 semester-long independent study projects, and 26 summer internships.

Associate Research Scholars Supervised (at Princeton, unless otherwise noted)

Xiaojin Zheng, 2024-2025 (now Assistant Professor, NTU Singapore).

Postdoctoral Scholars Supervised (at Princeton, unless otherwise noted)

Minh-Thê Hoang Ngoc, 2024-present.
Ziga Casar, 2024-2025 (now postdoctoral fellow, University of Basel, Switzerland).
Xiaojin Zheng, 2021-2024 (promoted to Associate Research Scholar in 2024).
Zhanar Zhakiyeva, 2022 (now Research Scholar, Astana University, Kazakhstan).
Bastien Wild, 2018-2022 (co-supervised with CE White; now Staff Scientist, National Research Institute for Sustainable Development, University of Grenoble, France).
Thomas R Underwood, 2017-2022 (now Postdoctoral Scholar, Pacific Northwest National Laboratory).
Ayumi Koishi, 2018-2020 (now Staff Scientist, RIKEN National Laboratory, Japan).
Greeshma Gadikota, 2016-2017 (now Professor, Columbia University).
Baptiste Dazas, 2015-2017 (now Assistant Professor, University of Poitiers, France).
Lauren E Beckingham, 2012-2014, Lawrence Berkeley National Laboratory (co-supervised with CI Steefel; now Associate Professor, Auburn University).
Laura M Hamm, 2012-2013, Lawrence Berkeley National Laboratory.
Yangyang Liu, 2012-2013, Lawrence Berkeley National Laboratory.
Michael Holmboe, 2011-2012, Lawrence Berkeley National Laboratory (now Associate Professor, University of Umeå, Sweden).

Graduate Students Supervised, as Major Advisor (PhD unless noted otherwise)

Zhimin Yang, 2026-present.
Fengqian Xu, 2025-present.
Bright Nyameasem, 2024-present.
Jiaqi Wen, 2024-present.
Caridad Estrada-Cardona, 2023-present.
Mitchell Jans, 2022-present.
Xiaohan Li, 2018-2023 (now Staff Scientist, University of Chicago).
Avery Agles, 2018-2024 (now Fellow of the American Association for the Advancement of Science).
Mihiro Nomura, 2017-2019 (MSE, now Engineer at Mitsubishi Corporation, Japan).
Xinyi Shen, 2016-2022 (now Postdoctoral Scholar, Pacific Northwest National Laboratory).
Emily Wei-Hsin Sun, 2016-2022 (now Lecturer, University of Toronto).
Francisco J Carrillo, 2016-2021 (now Machine Learning Engineer, Scanslated).

Jennifer AR Willemsen, 2015-2021 (now Policy Advisor for Environment, Energy, and Agriculture, Office of Governor Mikie Sherrill, State of New Jersey).

PROFESSIONAL ACTIVITIES (Internal)

University Committees

Faculty Survey Advisory Group (2025); Faculty Advisory Committee on Diversity (2024-present); Committee on Committees (2017-22).

Other Academic Service

Civil and Environmental Engineering

CEE faculty search committee (2024-25); Director of Undergraduate Studies, Acting (Spring & Fall 2025; 2023-24; Fall 2021); Undergraduate Advising, Environmental Engineering track (2017-present); Undergraduate Advising, Geological Engineering track (2016-24).

High Meadows Environmental Institute

Environmental Postdoctoral Fellows Program committee (2024-present); Hack Award Review Committee (Spring 2024); Diversity, Equity, and Inclusion committee member (2021-22); Director of Graduate Studies (2019-22); Walbridge Fund Graduate Award committee leader (2019-22); 25th Anniversary committee member (2017-19).

School of Engineering and Applied Science

Freshman Advising (2016-17, 2019-20).

Geological Engineering Program

Geological Engineering Program Executive Committee (2015-24).

PROFESSIONAL ACTIVITIES (External)

Service to Scientific Societies

American Chemical Society, Geochemistry Division

Division Chair (2026-present); Program Chair (2025); Program Chair-elect (2024).

Clay Minerals Society

Treasurer (2026-present); Finance and Budget Committee Chair (2026-27); Past President (2025-26); President (2024-25); Vice-President (2023-24); Vice-President Elect (2022-23); Committee on Council Nominations (2016-22); Editor of the bi-monthly CMS News page in *Elements* (2013-15).

Mineralogical Society of America

Dana medal committee member (2023-present).

American Geosciences Institute

Critical needs report committee member (2022-24).

Professional Society Memberships

American Chemical Society (ACS), American Geophysical Union (AGU), Clay Minerals Society (CMS), European Association of Geochemistry (EAG), Mineralogical Society of America (MSA), Soil Science Society of America (SSSA), Society of Rheology (SOR).

Manuscript Reviews for Journals

Reviewer of 176 manuscripts for 44 scholarly journals: Accounts of Chemical Research, ACS Earth and Space Chemistry, ACS Nano, Acta Geotechnica, Advances in Water Resources, Aerosol Science and Technology, Applied Clay Science, Applied Geochemistry, Chemical Reviews, Chemosphere, Clays and Clay Minerals, Colloids and Surfaces, Communications Earth & Environment, Croatica Chimica Acta, Engineering Geology, Environmental Science: Nano, Environmental Science: Processes and Impacts, Environmental Science and Technology, Fluid Phase Equilibria, Geochimica et Cosmochimica Acta, Geophysical Perspectives Letters, International Journal of Greenhouse Gas Control, Journal of the American Chemical Society, Journal of Chemical Physics, Journal of Colloid

and Interface Science, Journal of Contaminant Hydrology, Journal of Engineering Mechanics, Journal of Geophysical Research, Journal of Hydrology, Journal of Physical Chemistry, Journal of Physical Chemistry Letters, Langmuir, Molecular Physics, Nano Letters, Nature Communications, Nuclear Technology, Physical Chemistry Chemical Physics, Proceedings of the National Academy of Sciences, Science, Soil Science Society of America Journal, SPE Journal, Transport in Porous Media, Vadose Zone Journal, and Water Resources Research.

Editing of Scientific Journals

Guest Editor, *Proceedings of the National Academy of Sciences of the U.S.A.* (2022).
Guest Editor, *Accounts of Chemical Research* (2017).
Associate Editor, *Frontiers in Energy Research* (2014-2019).

Service to Funding Agencies & Non-Profit Organizations

Ad-hoc reviewer of 94 proposals for the US Department of Energy (DOE), the National Science Foundation (NSF), Army Research Office (ARO), the US Defense Threat Reduction Agency (DTRO), the American Chemical Society Petroleum Research Fund (ACS PRF), the Austrian Science Fund (FWF), the National Sciences and Engineering Research Council of Canada (NSERC), the French Agence Nationale de la Recherche (ANR), the German Research Foundation (DFG), the Portuguese Science and Technology Foundation (FCT), the Swiss National Science Foundation (SNSF), the Foundation for Polish Science (FPS), the Swiss National Supercomputing Center, and the Graduate Women in Science (GWIS) National Fellowship Program.

Panelist on 11 proposal review panels for the NSF [2016 (× 2), 2019, 2020 (× 3), 2021, 2026] and the US DOE (2017, 2020, 2024, 2025).

Panelist on the mid-term review panel of an Energy Frontiers Research Center of the US DOE (2024).

Leadership of International Workshops and Short Courses

Workshop on "Physics in the Ground Beneath our Feet" at the Princeton Center for Theoretical Studies (2022). (With S Datta, CY Lai, and HA Stone)

Workshop on "Transport in Disordered Environments" at the Princeton Center for Theoretical Studies (2019). (With S Datta and A Kosmrjl)

Workshop on "Molecular Dynamics Simulations" at the Goldschmidt conference in Paris (2017). (With M Holmboe, LN Lammers, and K Kulasinski)

Short course on "Geochemistry of geologic CO_2 sequestration" in Berkeley under the auspices of the Mineralogical Society of America (2013). (With DJ DePaolo, DR Cole, and A Navrotsky)

Workshop on "Microscopic-scale view of CO_2 sequestration" at the European Center for Atomistic and Molecular Modeling (CECAM) in Lausanne (2011). (With B Rotenberg)

Leadership of Large Collaborative Research Projects

Member of the four-person Executive Committee and Leader of one of the three Thrust Areas of the Center for Nanoscale Controls on Geologic CO_2, a DOE Office of Science Energy Frontiers Research Center (EFRC) with ~20 co-PIs (2011-2018).

Organization of Conference Sessions

American Chemical Society (ACS) meeting [2014, 2022, 2025 (× 3), 2026 (× 2)].
American Geophysical Union (AGU) meeting (2008, 2010, 2023, 2024, 2025).
Clay Minerals Society (CMS) meeting [2024 (× 2), 2025, 2026].
Computational Methods in Water Resources (CMWR) conference (2018).
Goldschmidt conference [2009 (× 2), 2015, 2017, 2020].

October 15, 2026