

Drew Gorman-Lewis
Curriculum Vitae

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Education

- 2006 **Ph.D.**, *University of Notre Dame*, Notre Dame, IN.
Advisor: Jeremy B. Fein
- 2002 **Bachelor of Science**, *University of Oregon*, Eugene, OR.

Appointments

- 2014–Present **Associate Professor**, *University of Washington*, Seattle, WA.
2008–2014 **Assistant Professor**, *University of Washington*, Seattle, WA.
2006–2007 **Postdoctoral Appointee**, *Argonne National Laboratory*, Argonne, IL.
Supervisor: Lynda Soderholm
- 2006 **Postdoctoral Research Associate**, *University of Notre Dame*, Environmental Molecular Science Institute.

Publications

- 2020 C. E. Hart and D. Gorman-Lewis, Energetics of acidianus ambivalens growth in response to oxygen availability, *Geobiology*, **In press**.
- 2019 D. Gorman-Lewis, W. Martens-Habbena, and D.A. Stahl, Cu(II) adsorption onto ammonia-oxidizing bacteria and archaea, *Geochimica et Cosmochimica Acta*, **255**:127 – 143.
- 2019 D Gorman-Lewis, The application of isothermal titration calorimetry for investigating proton and metal interactions on microbial surfaces, *In Analytical Geomicrobiology: A Handbook of Instrumental Techniques*, (Cambridge University Press).
- 2018 M.S. Alam, N. Gorman-Lewis, D.and Chen, S. Safari, K. Baek, K.O. Konhauser, and D.S. Alessi, Mechanisms of the removal of U(VI) from aqueous solution using biochar: A combined spectroscopic and modeling approach, *Environmental Science & Technology*, **52**(22):13057–13067.
- 2018 M.S. Alam, D. Gorman-Lewis, N. Chen, S.L. Flynn, Y.S. Ok, K.O. Konhauser, and D.S. Alessi, Thermodynamic analysis of nickel(II) and zinc(II) adsorption to biochar, *Environmental Science & Technology*, **52**(11):6246–6255.

- 2017 A. Zhou, R. Lau, R. Baran, J. Ma, F. von Netzer, W. Shi, D. Gorman-Lewis, M.L. Kempher, Z. He, Y. Qin, Z. Shi, G.M. Zane, L. Wu, B.P. Bowen, T.R. Northen, K.L. Hillesland, D.A. Stahl, J.D. Wall, A.P. Arkin, and J. Zhou, Key metabolites and mechanistic changes for salt tolerance in an experimentally evolved sulfate-reducing bacterium, *desulfovibrio vulgaris*, *mBio*, **8**(6).
- 2017 S. Turkarslan, A.V. Raman, A.W. Thompson, C.E. Arens, M.A. Gillespie, F. von Netzer, K.L. Hillesland, S. Stolyar, A. López García de Lomana, D.J. Reiss, D. Gorman-Lewis, G.M. Zane, J.A. Ranish, J.D. Wall, D.A. Stahl, and N.S. Baliga, Mechanism for microbial population collapse in a fluctuating resource environment., *Molecular systems biology*, **13**:919.
- 2016 F. Netzer, D Gorman-Lewis, E. L. Shock, S. Turkarslan, C. Arens, A. Thompson, N. Baliga, A. Zhou, and D. A. Stahl, Understanding the thermodynamic foundations of microbial growth efficiencies via microcalorimetry, *International Symposium on Microbial Ecology*.
- 2015 F. Netzer, D Gorman-Lewis, A. Thompson, N. Baliga, M. Fields, T. Northen, E. L. Shock, and D.A. Stahl, Developing a microcalorimetric method for understanding the efficiency of microbial growth in communities, *Ecosystems and Networks Integrated with Genes and Molecular Assemblies Meeting*.
- 2014 D. Gorman-Lewis, W. Martens-Habbena, and D. A. Stahl, Thermodynamic characterization of proton-ionizable functional groups on the cell surfaces of ammonia-oxidizing bacteria and archaea, *Geobiology*, **12**(2):157–171.
- 2014 D. Gorman-Lewis, Enthalpies and entropies of Cd and Zn adsorption onto *Bacillus licheniformis* and enthalpies and entropies of Zn adsorption onto *Bacillus subtilis* from isothermal titration calorimetry and surface complexation modeling, *Geomicro. J.*, **31**(5):383–395.
- 2013 Z. R. Harrold and D. Gorman-Lewis, Thermodynamic analysis of *Bacillus subtilis* endospore protonation using isothermal titration calorimetry, *Geochim. Cosmochim. Acta*, **109**:296–305.
- 2013 D. Gorman-Lewis, M. P. Jensen, Z. R. Harrold, and Mikaela R. Hertel, Complexation of neptunium(V) with *Bacillus subtilis* endospore surfaces and their exudates, *Chem. Geol.*, **341**:75–83.
- 2012 Mark P. Jensen, Baikuntha P. Aryal, Drew Gorman-Lewis, Tatjana Paunesku, Barry Lai, Stefan Vogt, and Gayle E. Woloschak, Submicron hard x-ray fluorescence imaging of synthetic elements, *Anal. Chim. Acta*, **722**(0):21–28.
- 2011 Tatiana Y. Shvareva, Lena Mazeina, Drew Gorman-Lewis, Peter C. Burns, Jennifer E. S. Szymanowski, Jeremy B. Fein, and Alexandra Navrotsky, Thermodynamic characterization of boltwoodite and uranophane: Enthalpy of formation and aqueous solubility, *Geochim. Cosmochim. Acta*, **75**(18):5269–5282.

- 2011 Mark P. Jensen, Drew Gorman-Lewis, Baikuntha Aryal, Tatjana Paunesku, Stefan Vogt, Paul G. Rickert, Soenke Seifert, Barry Lai, Gayle E. Woloschak, and L. Soderholm, An iron-dependent and transferrin-mediated cellular uptake pathway for plutonium, *Nat. Chem. Biol.*, **7**(8):560–565.
- 2011 Zoe R. Harrold, Mikaela R. Hertel, and Drew Gorman-Lewis, Optimizing *Bacillus subtilis* spore isolation and quantifying spore harvest purity, *J. Microbiol. Methods*, **87**(3):325–329.
- 2011 D. Gorman-Lewis, Baikuntha P. A., T. Paunesku, S. Vogt, B. Lai, G. E. Woloschak, and M. P. Jensen, Direct determination of the intracellular oxidation state of plutonium, *Inorg. Chem.*, **50**(16):7591–7597.
- 2011 D. Gorman-Lewis, Enthalpies of proton adsorption onto *Bacillus licheniformis* at 25, 37, 50, and 75°C, *Geochim. Cosmochim. Acta*, **75**(5):1297–1307.
- 2011 Baikuntha P. Aryal, Drew Gorman-Lewis, Tatjana Paunesku, Richard E. Wilson, Barry Lai, Stefan Vogt, Gayle E. Woloschak, and Mark P. Jensen, Plutonium uptake and distribution in mammalian cells: Molecular vs. polymeric plutonium, *Int. J. Radiat. Biol.*, **87**(10):1023–1032.
- 2009 Drew Gorman-Lewis, Calorimetric measurements of proton adsorption onto *Pseudomonas putida*, *J. Colloid Interface Sci.*, **337**(2):390–395.
- 2009 D. Gorman-Lewis, T. Shvareva, K. A. Kubatko, P. C. Burns, D. M. Wellman, B. McNamara, J. E. S. Szymanowski, A. Navrotsky, and J. B. Fein, Thermodynamic properties of autunite, uranyl hydrogen phosphate, and uranyl orthophosphate from solubility and calorimetric measurements, *Environmental Science & Technology*, **43**(19):7416–7422.
- 2008 L. Soderholm, S. Skanthakumar, D. Gorman-Lewis, M. P. Jensen, and K.L. Nagy, Characterizing solution and solid-phase amorphous uranyl silicates, *Geochim. Cosmochim. Acta*, **72**(1):140–150.
- 2008 Drew Gorman-Lewis, Jeremy B. Fein, Peter C. Burns, Jennifer E.S. Szymanowski, and Jenalee Converse, Solubility measurements of the uranyl oxide hydrate phases metaschoepite, compreignacite, na-compreignacite, becquerelite, and clarkeite, *J. Chem. Thermodyn.*, **40**(6):980–990.
- 2008 D. Gorman-Lewis, S. Skanthakumar, M.P. Jensen, S. Mekki, K.L. Nagy, and L. Soderholm, FTIR characterization of amorphous uranyl-silicates, *Chem. Geol.*, **253**(3-4):136–140.
- 2008 D. Gorman-Lewis, P. C. Burns, and J.B. Fein, Review of uranyl mineral solubility measurements, *J. Chem. Thermodyn.*, **40**:335–352.
- 2007 D. Gorman-Lewis, L. Mazeina, B. Fein Jeremy, J. Szymanowski, P. C. Burns, and A. Navrotsky, Thermodynamic properties of soddyite from solubility and calorimetric measurements, *J. Chem. Thermodyn.*, **39**(4):568–575.
- 2006 D. Gorman-Lewis, J. B. Fein, and M. P. Jensen, Enthalpies and entropies of proton and cadmium adsorption onto *Bacillus subtilis* bacterial cells from calorimetric measurements, *Geochim. Cosmochim. Acta*, **70**(19):4862–4873.

- 2005 Drew Gorman-Lewis, Patricia E. Elias, and Jeremy B. Fein, Adsorption of aqueous uranyl complexes onto *Bacillus subtilis* cells, *Environ. Sci. Technol.*, **39**(13):4906–4912.
- 2005 D. Gorman-Lewis, M. P. Jensen, and J. B. Fein, Measuring the enthalpy of proton, lead, and cadmium adsorption onto bacillus subtilis, *Geochim. Cosmochim. Acta*, **69**(10):A669–A669.
- 2005 D. Gorman-Lewis, J. B. Fein, L. Soderholm, M. P. Jensen, and M. H. Chiang, Experimental study of neptunyl adsorption onto *Bacillus subtilis*, *Geochim. Cosmochim. Acta*, **69**(20):4837–4844.
- 2005 Jeremy B. Fein, Jean-Francois Boily, Nathan Yee, Drew Gorman-Lewis, and Benjamin F. Turner, Potentiometric titrations of *Bacillus subtilis* cells to low pH and a comparison of modeling approaches, *Geochim. Cosmochim. Acta*, **69**(5):1123–1132.
- 2005 J. B. Fein, D. Gorman-Lewis, L. Soderholm, M. P. Jensen, and M. H. Chiang, Surface complexation modeling of u(vi) and np(v) adsorption onto the bacterial cell wall of bacillus subtilis, *Geochim. Cosmochim. Acta*, **69**(10):A472–A472.
- 2004 S. Skanthakumar, D. Gorman-Lewis, A. Locock, M. H. Chiang, M. P. Jensen, P. C. Burns, J. Fein, C. D. Jonah, K. Attenkofer, and L. Soderholm, Changing np redox speciation in the synchrotron beam, *Materials Research Society*, **802**:151–156.
- 2004 Drew J. Gorman-Lewis and Jeremy B. Fein, Experimental study of the adsorption of an ionic liquid onto bacterial and mineral surfaces, *Environ. Sci. Technol.*, **38**(8):2491–2495.
- 2004 R.D. Gilbertson, H.P. Wu, D Gorman-Lewis, T.J.R. Weakley, H.C. Weiss, R. Boese, and M.M. Haley, An unusually robust triple bond: synthesis, structure and reactivity of 3-alkynylcyclopropenes, *Tetrahedron*, **60**:1215–1223.

Conference Presentations

- 2019 Metabolic Pathway Analysis Conference, Riga, LV, Modeling the impact of temperature stress on partitioning of energy between maintenance and growth in *Desulfovibrio alaskensis* G20. von Netzer, F., Gorman-Lewis, D., Hunt, K.A., Shock, E., Stahl, D.A.
- 2018 Goldschmidt Conference, Boston, MA. A Thermodynamic Description of Microbial U(VI) Reduction. Wray, A., Gorman-Lewis, D.
- 2018 International Symposium on Microbial Ecology, Leipzig, DE, Microcalorimetric analyses of microbial energy partitioning between growth and maintenance under optimal and suboptimal environmental conditions, von Netzer, F. and Hunt, K.A. and Gorman-Lewis, D. and Shock, E. and Turkarlsan, S. and Arens, C.E. and Thompson, A.W. and Baliga, N.S. and Zhou, A. and Zhou, J. and Hwang, C. and Fields, M. and Paiva, A. and Pilloni, G. and Stahl, D.A.

- 2017 Biological Waste as Resource, Hong Kong, CN, Molecular-scale mechanisms and models of metals immobilization by biochar, Alessi D.S., Alam, M.S., Cossio, M., Gunten, K.v., Swaren, L., Robbins, L.J., Chen, N., Gorman-Lewis, D., Kenney, J.P.L., Flynn, S.L., Ok, Y.K., Konhauser, K.O.
- 2017 ACS, San Francisco CA, Analysis of U(VI) adsorption to biochar using X-ray absorption spectroscopy and isothermal titration calorimetry, Alam, M.S., Gorman-Lewis, D., Chen, N., Konhauser, K.O., Alessi, D.S.
- 2017 Genomic Sciences Program Annual Principal Investigator Meeting, Arlington, VA, Understanding the thermodynamic Foundations of microbial Growth Efficiencies in the Lab and Field, Netzer, F.v., Gorman-Lewis, D., Shock, E., Turkarslan, S., Arens, C.E., Thompson, A.W., Baliga, N.S., Zhou, A., Zhou, J., Aaring, A., Chakraborty, R., Moon, J.W., Elias, D., Joyner, D.C., Hazen, T.C., Smith, H., Fields, M., Poole, F., Adams, M.W.W., Carlson, H., Deutschbauer, A., Vuono, D., Meinhardt, K., Stahl, D.A., Arkin, A.P., Adams, P.D.
- 2016 International Symposium on Microbial Ecology, Montreal, CA, Understanding the thermodynamic foundations of microbial growth efficiencies via microcalorimetry, Netzer, F.v., Gorman-Lewis, D., Shock, E., Turkarslan, S., Arens, C.E., Thompson, A.W., Baliga, N.S., Zhou, A., Zhou, J., Stahl, D.A.
- 2016 AGU, San Francisco, CA, Magnesium isotope fractionation during microbially enhanced forsterite dissolution, Brewer, A., Teng, F.Z., Gorman-Lewis, D., Harrold, Z.R.
- 2013 AGU, San Francisco, CA, Harrold, Z.E. and Gorman-Lewis, D.
- 2012 The 22nd V.M. Goldschmidt Conference, Montreal. Complexation of Neptunium(V) with *Bacillus subtilis* endospores and their exudates.
- 2010 American Chemical Society, Spring National Meeting & Exposition. San Francisco, CA. Calorimetric measurements of proton adsorption onto *Pseudomonas putida*.
- 2010 Goldschmidt Conference, Knoxville TN. Thermodynamic characterization of *Bacillus subtilis* spore-proton adsorption. Harrold, Z. & Gorman-Lewis, D.
- 2007 Environmental Remediation Science Program Annual Meeting, Lansdowne VA. Low Temperature Uranyl Silicate Formation.
- 2007 American Chemical Society 233rd National Meeting & Exposition, Chicago IL. Experimental measurements of uranyl oxide hydrate mineral solubilities at 298K.
- 2005 Materials Research Society, Boston MA. Experimental Measurements of Uranyl Mineral Solubilities at 298K.
- 2005 Goldschmidt Conference, Moscow ID. Measuring the Enthalpy and Entropy of Proton and Cadmium Adsorption onto *Bacillus subtilis*.
- 2005 Water Rock Interactions, Saratoga Springs NY. Uranium Adsorption onto *Bacillus subtilis* Bacterial Cell Walls.

- 2004 Ionic Liquids Symposium, University of Notre Dame. Experimental Study of the Adsorption of an Ionic Liquid onto Bacterial and Mineral Surfaces.
- 2003 Geological Society of America, Seattle WA. Experimental Study of Neptunyl Adsorption onto *Bacillus subtilis*.