Maxim I. Boyanov

Address1:	Bulgarian Academy of Sciences Institute of Chemical Engineering Acad. Georgi Bontchev Str., Bldg.103 Sofia, 1113, Bulgaria	**Address2:**	Biosciences Division Argonne National Laboratory 9700 S. Cass Ave Lemont, IL 60439, U.S.A.
Phone:	+359 (88) 821-9637	**Phone:**	+1 (630) 252-8242
Email:	mboyanov@iche.bas.bg	**Email:**	mboyanov@anl.gov

EDUCATION

Ph.D.: **Physics**, University of Notre Dame, IN, U.S.A. 1996-2003
Dissertation: "*XAFS spectroscopy studies of metal-ligand interactions at organic surfaces and in solution*"
Advisor: Prof. Bruce Bunker

B.Sc., M.Sc.: **Physics,** University of Sofia, Bulgaria. 1991-1995
Illinois Institute of Technology, Chicago, IL, U.S.A. 1990-1991
M.Sc. Thesis: "*Two new analytical solutions to the inverse ellipsometric problem*"
Advisor: Prof. Stoyan Russev
Graduated: Magna Cum Laude

PROFESSIONAL EXPERIENCE

Professor: **Inst. of Chemical Engineering,** Bulgarian Academy of Sciences 2023 - current
Sofia, Bulgaria

Assoc. professor: **Inst. of Chemical Engineering,** Bulgarian Academy of Sciences 2014 - 2023
Sofia, Bulgaria
Funded Projects: Spectroscopic Characterization of Hg and U Biogeochemical Transformations, subcontract from Argonne National Laboratory, USA and DOE's Subsurface Biogeochemical Research Program

Consultant: **Biosciences Division,** Argonne National Laboratory 2014 - current
Illinois, U.S.A
Project Collaborator: Argonne Subsurface Science Focus Area project, funded by the U.S. Department of Energy through the Subsurface Biogeochemical Research Program (a $3M/3-year, renewable project), https://www.anl.gov/bio/subsurface-biogeochemical-research

Staff Physicist: **Molecular Environmental Science Group,** Biosciences Division, 2008 - 2014
Argonne National Laboratory, U.S.A.
Project Co-PI: Argonne Subsurface Science Focus Area project, funded by the U.S. Department of Energy through the Subsurface Biogeochemical Research Program (a $4.5M/3-year, renewable project)

Assistant Professor: **Condensed Matter Physics,** Department of Physics,
University of Sofia, Bulgaria 2007-2008
Funded Projects: "*Optical and fluorescence microscopy studies of solid phase deposition dynamics in drying suspension drops*", Research grant from the University of Sofia, 2008-2009
"*Coupled Microbial, Geochemical, and Mineralogical Controls on Biogenic Fe Speciation and Reactivity*", Argonne National Laboratory subcontract to the University of Sofia, 2007-2010
Classes taught: Electricity and Magnetism, Information theory and applications, Experimental methods in Physics (optical microscopy), Scanning electron microscopy for the non-physicist, Surface phenomena in dispersed systems, Numerical methods, Radiochemistry

Postdoctoral: **X-ray Physical-Chemistry**, Environmental Research Division, Argonne National Laboratory, IL, U.S.A. 2003-2006

Projects: "*Adsorption and reduction of aqueous U(VI) by Fe(II) at carboxyl surfaces*", "*Reduction of U(VI) by green rust phases*", and "*X-ray elemental analysis of single bacterial cells*"

Supervisor: Dr. Kenneth Kemner

RESEARCH EXPERIENCE

- Combined acid-base titration, metal adsorption, and XAFS experiments
  - H^+, Fe^{2+}, and UO_2^{2+} sorption to bacteria, minerals, latex spheres
  - Analysis using chemical equilibrium models, including DL electrostatics
  - UO_2^{2+} - Fe^{2+} redox transformations
- Working with anoxic and radiological systems, Fe^{2+} and UO_2^{2+}
- Complete operation of synchrotron beamlines (Advanced Photon Source)
- XAFS sample chamber designs; XAFS data analysis and software development
- Synchrotron X-ray Fluorescence (micro)analysis
  - Elemental content maps of single bacterial cells with 0.15 micron resolution
  - Metal transformations inside and near bacterial surfaces and relation to metabolic processes
  - Elemental content of petrified wood
- Synchrotron X-ray Tomography analysis
  - 3D porosity analysis of soil samples under different conditions, at 2 micron resolution
- Scanning electron microscopy of iron oxide phases
- XAFS of uranium reduction by biotically and abiotically produced iron oxide phases
  - Determination of uranium valence state and retention mechanisms in mixed-valence iron oxides-hydroxides (green rusts), magnetite, adsorbed Fe^{II}
- GI-XAFS of aqueous Pb adsorbed underneath a Langmuir monolayer
  - Grazing incidence Pb-L_{III} XAFS measurements on a solution surface. Provided the structure of the adsorbed complex and a model explaining the peculiar effect of Pb on monolayer bulk properties.
- EXAFS applied to metal adsorption onto cell wall biomass
  - Studied Cd ions bound to *B. subtilis* cell-wall biomass as a function of pH. Provided metal binding site speciation and atom coordination geometry in the 3.4-7.8 pH range.
- XAFS and X-ray Reflectivity on III-V semiconductors and II-VI superlattices
  - Reflectivity and Reflection-mode XAFS on wet-thermally oxidized AlGaAs to characterize the interfacial region structure. Polarization dependent XAFS of II-VI superlattices.
- Ellipsometry applied to protein layers; new analytical solutions to the ellipsometric equation
  - Kinetics and extent of protein adsorption at the air/water interface studied by elliprometry. Two analytical inversions of the non-linear minimization problem.

HONORS AND AWARDS

Bayer Predoctoral Fellowship in Environmental Science	2001-2002
Bayer Summer Fellowship	2001
Presidential Fellowship, University of Notre Dame, IN	1996-2000
Annual Academic Excellence Stipend, University of Sofia, Bulgaria	1992-1995
Dean's List, Illinois Institute of Technology, Chicago, IL	1991

RESEARCH INTERESTS

I am interested in the molecular-scale mechanisms of aqueous ion interaction with mineral and bacterial surfaces, including complexation, sorption, incorporation, surface-controlled precipitation, and redox reactions. These fundamental processes are studied in the biogeochemical context of metal, metalloid, and radionuclide transport in natural and engineered environments. I employ synchrotron x-ray spectroscopy (XANES and EXAFS) to determine the molecular structure around the metals. I am also developing and applying x-ray fluorescence and tomography imaging techniques at the micron and sub-micron scale.

PROFESSIONAL ACTIVITIES

- Guest-editor for “Redox Reactivity of Iron Minerals in the Geosphere, 2nd Edition”, a special issue of Minerals (ISSN 2075-163X). This special issue belongs to the section "Environmental Mineralogy and Biogeochemistry". (2023-2024)
- Co-organizer of the "Transformations and Transport of Radionuclides in the Environment" session at ACS 2015 in Boston, MA, August 16-20, 2015
- Co-chair of the “Earth and Radionuclides” session at the XAFS16 conference, Karlsruhe, Germany, August 25, 2015
- Academic Editor for PLoS ONE (2013-2023)
- Graduate research committee member and post-doc advisor of Drew Latta, University of Iowa/ANL
- Co-organizer of the “Spectroscopic Identification of Interfacial Chemical Species in Natural and Engineered Environments” session at ACS 2012 in Philadelphia, PA, August 19-23, 2012
- Co-organizer of the “Biogeochemical Processes in Radioactive Legacy Management” session at Goldschmidt 2011 in Prague, Czech republic, August 15-19, 2011
- Co-chair of the “Abiotic and Biotic Factors Affecting Contaminant Transformation at Iron Oxide Surfaces” session at the ACS Meeting in Chicago, March 25-29, 2007
- Journal article reviewer: Environmental Science and Technology (2-4 per year), Geochimica et Cosmochimica Acta (1-2 per year), Applied Geochemistry (1-2 per year), Chemical Geology (3-4 per year), Journal of Physical Chemistry (1-2), American Mineralogist (1-2), Biotechnology and Bioengineering, Science
- Grant proposal reviews: National Science Foundation (2008), ANL LDRD (2010), SLAC(2012-now)
- Review panels: UChicago Cancer Research Center, 2010, 2012 grant program
- Advanced Photon Source Upgrade (APS-U) committee member (2012-2014)

PEER REVIEWED PUBLICATIONS *(higher numbered publications are newer; an up-to-date citation profile of these publications can be seen in my Google Scholar profile)*

90. B. Mishra, **M. I. Boyanov**, K.M.Kemner, E. J. O’Loughlin. “Reduction of Hg^{II} by Mn^{II}”, *ACS Earth and Space Chemistry* 8, 1125-1132 (2024). doi/10.1021/acsearthspacechem.3c00304
89. P. Lin, **M.I. Boyanov**, E.J. O’Loughlin, W. Xing, K. M. Kemner, J. Seaman, S.M. Simner, D. I. Kaplan. “Uranium and nickel partitioning in contaminated wetland sediments”, *Water* 16, 966 (2024). doi.org/10.3390/w16070966
88. D. I. Kaplan, **M. I. Boyanov**, N. Losey, P. Lin, C. Xu, E. J. O’Loughlin, P. H. Santschi, W. Xing, W. Kuhne, K. M. Kemner. “Uranium biogeochemistry in the rhizosphere of a riparian wetland” Submitted to *Environ. Sci. Technol.*, 58, 6381-6390, doi.org/10.1021/acs.est.3c10481 (2024).
87. A. W. N. Kilber, **M. I. Boyanov**, K. M. Kemner, E. J. O’Loughlin. “Interactions of Perrhenate ($Re(VII)O4^-$) with Fe(II)-Bearing Minerals”. *Minerals,* 14(2):181. doi.org/10.3390/min14020181 (2024)
86. Y. Zhang, **M.I. Boyanov**, E.J. O’Loughlin, K.M. Kemner, H.-S. Kim, M.J. Kwon, “Reaction pathways and products during the reduction of Sb(V) to Sb(III) by *Rhodoferax ferrireducens* strain YZ-1”, *Journal of Hazardous Materials*, 465, 133240, doi.org/10.1016/j.jhazmat.2023 (2024).
85. Myers-Pigg, A. N.; Pennington, S. C.; Homolka, K. K.; Lewis, A. M.; Otenburg, O.; Patel, K. F.; Regier, P.; Bowe, M.; **Boyanov, M. I.**; Conroy, N. A.; Day, D. J.; Norris, C. G.; O’Loughlin, E. J.; Roebuck, J. A.; Stetten, L.; Bailey, V. L.; Kemner, K. M.; Ward, N. D.; Alford, S.; Back, M. P.; Baldwin, A.; Bolinger, J.; Cianci-Gaskill, J. A.; Cooper, M. J.; Demeo, A.; Derby, K.; Detweiler, D.; Devres-Zimmerman, S.; Eberhard, E.; Gedan, K.; Haaf, L.; Johnson, E.; Khan, A.; Kirwan, M. L.; Kittaka, P.; Koontz, E.; Langley, A.; Leff, R.; Lerberg, S.; Malkin, S. Y.; Marcarelli, A. M.; McMurray, S. E.; Messerschmidt, T.; Michael, T. C.; Michael, H. A.; Minor, E. C.; Moye, B.; Mozdzer, T. J.; Neubauer, S.; Pain, A.; Philben, M.; Phillips, E.; Pratt, D.; Sage, L.; Sandborn, D.; Smith, S.; Smith, A.; Soin-Voshell, S.; Song, B.; Sprague-Getsy, A.; St. Laurent, K.; Staver, L.; Stearns, A.; Swerida, R.; Theuerkauf, E. J.; Tully, K.; Vargas, R.; Watson, E.; Weilminster, C.;

Consortium, E., “Biogeochemistry of upland to wetland soils, sediments, and surface waters across Mid-Atlantic and Great Lakes coastal interfaces”. *Scientific Data* 10, (1), 822. DOI: 10.1038/s41597-023-02548-7 (2023).

84. E.J. O’Loughlin, **M.I. Boyanov**, K.M. Kemner. “Tellurium Goes for a Ride on the “Ferrous” Wheel: Interactions of Te(VI) and Te(IV) with Iron(II)-Bearing Minerals “ *ACS Earth and Space Chemistry* 7(10): 1825-1836; doi.org/10.1021/acsearthspacechem.2c00364 (2023)
83. D.I. Kaplan, R.J. Smith, C.J. Parker, K.A. Roberts, P. Hazenberg, J. Morales, **M.I. Boyanov**, P. Weisenhorn, K.M. Kemner, B.A. Powell “Natural Attenuation of Uranium in a Fluvial Wetland: Importance of Hydrology and Speciation”, *Applied Geochemistry* 105718- (2023) doi.org/10.1016/j.apgeochem.2023.105718
82. V. Cupil-Garcia, J.Q. Li, S. Stephen, R.A. Odion, P. Strobbia, L. Menozzi, C. Ma, J. Hu, R. Zentella, **M. I. Boyanov**, Y.Z. Finfrock, D. Gursoy, D. Sholto Douglas, J. Yao, T-P Sun, K. M. Kemner, V-D. Tuan. “Plasmonic Nanorod Probes’ Journey inside Plant Cells for In Vivo SERS Sensing and Multimodal Imaging", *Nanonoscale*, 15, 6396–6407 (2023). http://dx.doi.org/10.1039/D2NR06235F
81. L. Sullivan, **M.I. Boyanov**, J. Wright, M. Warren, K. Kemner, J.Fein, “Reduction of Selenite by Bacterial Exudates”,*Geochimica et Cosmochimica Acta*, 338, 154-164 (2022), doi: 10.1016/j.gca.2022.10.014
80. S. Li, Q. Feng, J. Liu, Y. He, L. Shi, **M. I. Boyanov**, E. J. O’Loughlin, K. Kemner, R. R. Sanford, H. Shao, X. He, A. Sheng, X. Chen, C. Shen, W. Tu, Y. Dong. “Carbonate minerals and dissimilatory iron-reducing organisms trigger synergistic abiotic and biotic chain reactions under elevated CO2 concentration”. *Environ.Sci.Technol.* 56, 16428−16440 (2022), https://doi.org/10.1021/acs.est.2c03843.
79. L. Zhang, H. Dong, R. Li, D. Liu, L. Biang, Y. Chen, Z. Pan, **M.I. Boyanov**, K.M. Kemner, J. Wen, , Q. Xia, H. Chen, E.J. O'Loughlin, Y.Huang, "Effect of Siderophore DFOB on U(VI) Adsorption to Clay Mineral and Its Subsequent Reduction by an Iron-Reducing Bacterium", *Environ. Sci. Technol.* 56, 12702−12712 (2022), doi: 10.1021/acs.est.2c02047.
78. M.-J. Kwon, S. Lee, **M.I. Boyanov**, B. Mishra, K.M. Kemner, S.-K. Jeon, J-K. Hong, S. Lee. “Zn speciation and fate in soils and sediments along the ground transportation route of Zn ore to a smelter”, *J.Haz.Mat.* 438, 129422 (2022), doi.org/10.1016/j.jhazmat.2022.129422
77. X. Nie, Q. Lin, F. Dong, W. Cheng, C. Ding, J. Wang, M. Liu, G. Chen, Y. Zhou, X. Li, **M.I. Boyanov**, K. Kemner.” Surface biomineralization of uranium onto *Shewanella putrefaciens* with or without EPS”, *Ecotoxicology and Environmental Safety* 241, 113719 (2022) DOI: 10.1016/j.ecoenv.2022.113719
76. D. Dwivedi, C. Steefel, B. Arora, J. Banfield, J. Bargar, **M.I. Boyanov**, S.C. Books, X. Chen, S. Hubbard, D. Kaplan, K.M. Kemner, E.J. O’Loughlin, E.M. Pierce, S.L. Painter, T. Scheibe, H. Wainwright, K.H. Williams, M. Zavarin. “From Legacy Contamination to Watershed Systems Science: A Review of Scientific Insights and Technologies Developed through DOE-Supported Research in Water and Energy Security”, *Environmental Research Letters*, 17 (4) 043004 (2022)
75. J.L. Goff, Y. Wang, **M.I. Boyanov**, Q. Yu, K.M. Kemner, J.B. Fein, N. Yee, ”Tellurite Adsorption onto Bacterial Surfaces”, *Environ.Sci.Tech.* 55,15, 10378-10386 (2021) DOI: 10.1021/acs.est.1c01001
74. J.L. Goff, **M.I. Boyanov**, K.M. Kemner, N. Yee. ”The role of cysteine in tellurate reduction and toxicity”, *BioMetals.* 34, 4, 937-946 (2021). DOI:10.1007/s10534-021-00319-8
73. Flynn, T. M., D. A. Antonopoulos, K. A. Skinner, J. M. Brulc, E. Johnston, **M. I. Boyanov**, M. J. Kwon, K. M. Kemner, and E. J. O’Loughlin. “Biogeochemical dynamics and microbial community development under sulfate- and iron-reducing conditions based on electron shuttle amendment”. PLoS ONE 16(5): e0251883. https://doi.org/10.1371/journal.pone.0251883 (2021)
72. J.M. Paper, T.M. Flynn, **M.I. Boyanov**, K.M. Kemner, B.R. Haller, K. Crank, A. M. Lower, Q. Jin, M. F. Kirk. “Influences of pH and substrate supply on the ratio of iron to sulfate reduction“.*Geobiology* 19: 405–420 (2021) http://doi.org/10.1111/gbi.12444
71. L. Zhang, Y. Chen, Q. Xia, K.M. Kemner, Y.Shen, E.J. O’Loughlin, Z.Pan, Q.Wang, Z.Wang, Y.Huang, H. Dong, **M.I. Boyanov**. “Combined Effects of Fe(III)-bearing Clay Minerals and Organic

Ligands on U(VI) Bioreduction and U(IV) Speciation". *Environ.Sci.Technol.* 55, 9, 5929–5938 (2021). doi.org/10.1021/acs.est.0c08645

70. E.J. O'Loughlin, **M.I. Boyanov**, K.M. Kemner. "Reduction of Vanadium(V) by Iron(II)-Bearing Minerals". *Minerals*, 11(3), 316. doi.org/10.3390/min11030316 (2021)
69. C. R. Johnson, **M. I. Boyanov**, T. M. Flynn, J. Koval, D. A. Antonopoulos, K. M. Kemner, and E. J. O'Loughlin. "Reduction of Sb(V) by coupled biotic-abiotic processes under sulfidogenic conditions". *Heliyon* 7, e06275 (2021)
68. B. Ham, J-S. Kwon, **M.I. Boyanov**, E.J. O'Loughlin, K.M. Kemner, M-J. Kwon, "Geochemical and microbial characteristics of seepage water and mineral precipitates in a radwaste disposal facility affected by seawater intrusion and high alkalinity", *Journal of Environmental Management* 285, 112087 (2021)
67. E.J. O'Loughlin, **M.I. Boyanov**, C.A. Gorski, M.M. Scherer, K.M. Kemner. "Effects of Fe(III) oxide Mineralogy and Phosphate on Fe(II) Secondary Mineral Formation During Microbial Iron Reduction". *Minerals* 11(2), 149 (2021) https://doi.org/10.3390/min11020149
66. S.-C. Park, **M.I.Boyanov**, K.M.Kemner, E.J. O'Loughlin, M.-J.Kwon. "Distribution and speciation of Sb and toxic metal(loids) near an antimony refinery and their effects on indigenous microorganisms", *Journal of Hazardous Materials* 403, 123625- (2021) https://doi.org/10.1016/j.jhazmat.2020.123625
65. E.J. O'Loughlin, **M.I. Boyanov**, K.M. Kemner, K.O.Thalhammer, "Reduction of Hg(II) by Fe(II)-bearing smectite clay minerals", *Minerals* 10(12), 1079 (2020)
64. Y. Dong, R. Sanford, **M. Boyanov**, K. Kemner, T. Flynn, E. O'Loughlin, S. George, K. Fouke. B. Fouke. "Controls on Iron Reduction and Biomineralization over Broad Environmental Conditions as Suggested by the Firmicutes *Orenia metallireducens* Strain Z6", *Environ.Sci.Tech* 54, 10128-10140 (2020)
63. J. Dickson, N.A. Conroy, B.A. Powell, J.C. Seaman, **M.I. Boyanov**, K.M. Kemner, D.I. Kaplan, "Surfactant-modified siliceous zeolite Y for pertechnetate remediation". *Chemical Engineering Journal* 402, 126268 (2020)
62. A. Basu, C. Wanner, T. Johnson, C. Lundstrom, R. Sanford, E. Sonnenthal, **M. Boyanov**, K. Kemner, "Microbial U isotope fractionation depends on U(VI) reduction rate", *Environmental Science and Technology*, 54, 4 (2020) 2295-2303
61. M. E. Bishop, H. Dong, P. Glasser, B. R. Briggs, M. Pentrak, J. W. Stucki, **M. Boyanov**, K. M. Kemner, L. Kovarik, "Reactivity of Redox Cycled Fe-bearing Sediments towards Hexavalent Chromium Reduction", *Geochimica et Cosmochimica Acta* 252 (2019) 88–106 https://doi.org/10.1016/j.gca.2019.02.039
60. Crawford B., Strobbia P., Wang H-N., Zentella-Gomez R., **Boyanov M.I.**, Pei Z-M., Sun T-P., Kemner K. M., Vo-Dingh T. "Plasmonic Nanoprobes for in Vivo Multimodal Sensing and Bioimaging of MicroRNA within Plants", *ACS Applied Materials & Interfaces*, 11 (8) 7743–7754 (2019)
59. K.A. Marquart, B.R. Haller, J.M. Paper, T.M. Flynn, **M.I. Boyanov**, G. Shodunke, C. Gura, Q. Jin, M. F. Kirk. "Influence of pH on the balance between methanogenesis and iron reduction", *Geobiology* 17:185-198 (2019) https://doi.org/10.1111/gbi.12320
58. Q. Yu, **M.I. Boyanov**, J. Liu, K. M. Kemner, J. Fein. "Adsorption of selenite onto *Bacillus subtilis*: the overlooked role of cell envelope sulfhydryl sites in the microbial conversion of Se(IV)", *Environ.Sci.Tech* 52, 18, 10400-10407 (2018)
57. S. Yan, **M.I. Boyanov**, B. Mishra, K.M. Kemner, E.J. O'Loughlin. "U^{VI} Reduction by Biogenic and Abiotic Hydroxycarbonate Green Rusts: Kinetics and Mechanism" *Environ.Sci.Tech.* 52 (2018) 4601−4609
56. B. L. Huhmann, A. Neumann, **M. I. Boyanov**, K.M. Kemner, M. M. Scherer. "Emerging investigator series: As(V) in magnetite: incorporation and redistribution", *Environ. Sci.: Processes Impacts, 19 (2017) 1208-1219. (cover feature)*
55. M.-J.Kwon, **M.I.Boyanov**, J.-S. Yang, S.Lee, Y.-H.Hwang, J.-Y. Lee, B. Mishra, K.M.Kemner, "Transformation of zinc-concentrate in surface and subsurface environments: Implications for assessing zinc mobility/toxicity and choosing an optimal remediation strategy", *Environmental Pollution,* 226 (2017) 346-355.

54. **M.I.Boyanov**, D.E.Latta, M.M.Scherer, E.J.O'Loughlin, K.M.Kemner, "Surface area effects on the reduction of U^{VI} in the presence of synthetic montmorillonite", *Chemical Geology*, 464 (2017) 110-117
53. Y. Dong, R. Sanford, **M. Boyanov**, K. Kemner, T. Flynn, E. O'Loughlin, R. Locke, J. Weber, S. Egan, R. Mackie, I. Cann, B. Fouke. "*Orenia metallireducens* sp. nov. Strain Z6, a novel metal-reducing member of the phylum *Firmicutes* from the deep subsurface" *Applied and Environmental Microbiology*, 82, 21 (2016) 6440-6453
52. Y. Dong, R. Sanford, **M. Boyanov**, K. Kemner, T. Flynn, E. O'Loughlin, R. Locke, J. Weber, S. Egan, B. Fouke. "*Tepidibacillus decaturensis* sp. nov.: an anaerobic, moderately thermophilic iron-reducing bacterium isolated from a depth of 1.7 km in the Illinois Basin", USA *International Journal of Systematic and Evolutionary Microbiology*, 66 (2016) 3964–3971
51. M-J. Kwon, E.J.O'Loughlin, **M. I. Boyanov**, J.M. Brulc, E.R. Johnston, K.M. Kemner, D.A. Antonopoulos. "Impact of organic carbon electron donors on microbial community development under iron- and sulfate-reducing conditions", PLOS ONE (2016), 11(1): e0146689.
50. D. E. Latta, K. M. Kemner, B. Mishra, **M. I. Boyanov,** "Effects of calcium and phosphate on uranium(IV) oxidation: Comparison between nanoparticulate uraninite and amorphous U(IV)-phosphate", *Geochimica et Cosmochimica Acta*, 174 (2016) 122-142
49. M.-J. Kwon, S. Leeb, G. Leec, B. Hama, **M. I. Boyanov**, K. Kemner, E. O'Loughlin, J.-S. Yang. "Geochemical Characteristics and Microbial Community Compositions in Toxic Metal-rich Sediments Contaminated from Au-Ag Mine Tailings", *J. Hazardous Materials* 296 (2015) 147–157
48. D. E. Latta, **M. I. Boyanov,** K. M. Kemner, E. O'Loughlin, M. Scherer. "Reaction of U(VI) with green rusts: Effect of interlayer anion", *Current Inorganic Chemistry* 5, 156-168 (2015), DOI: 10.2174/1877944105666150420235350
47. M-J. Kwon, J-S. Yang, M-J. Shim, **M.I. Boyanov**, K. Kemner, E.O'Loughlin, "Acid extraction overestimates total Fe(II) in the presence of iron (hydr)oxide and sulfide minerals", *Env.Sci.Tech.Lett.* 1 (7), 310–314 (2014).
46. J.-K. Choe, **M.I. Boyanov**, J. Liu, K.Kemner, C.Werth, T. Strathmann, "X-ray spectroscopic characterization of immobilized rhenium species in hydrated rhenium-palladium bimetallic catalysts used for perchlorate water treatment, *J.Phys.Chem.C,* 118(22), 11666-11676 (2014)
45. M-J. Kwon, J-S. Yang, M.J.Shim, S. Lee, **M. Boyanov**, K. Kemner, E. O'Loughlin, "Biotic and abiotic reduction of Goethite (α-FeOOH) by subsurface microorganisms in the presence of electron donor and sulfate", J. Soil Groundw. Environ. 19(1), 54-62 (2014) 10.7857/JSGE.2014.19.1.054
44. D. E. Latta, B. Mishra, R.E. Cook, K. M. Kemner, **M. I. Boyanov,** "Stable U(IV) complexes form at high-affinity mineral surface sites", *Environ.Sci.Tech.*, 48 (3), 1683–1691 (2014)
43. M-J. Kwon, **M. Boyanov**, D. Antonopoulos, J. Brulc, E. Johnston, K. Skinner, K. Kemner, E. O'Loughlin, "Effects of dissimilatory sulfate reduction on Fe(III) (hydr)oxide reduction and microbial community development", *Gecochim et Cosmochim Acta*, 129, 177–190 (2014)
42. E. O'Loughlin, **M. Boyanov**, C. Gorski, S. Hoffman, M. McCormick, K. Kemner, "Effects of bound phosphate on the bioreduction of lepidocrocite (γ-FeOOH) and maghemite (γ-Fe2O3)", *Environ. Sci. Technol.*, 47, 9157−9166 (2013)
41. D. B. Watson, W-M. Wu, T. Mehlhorn, G. Tang, J. Earles, K. Lowe, T. M. Gihring, G. Zhang, F. Zhang, J. Phillips, **M. Boyanov**, B. Spalding, C. Schadt, K. M. Kemner, C. S. Criddle, P. M. Jardine, S. C. Brooks, "In situ Bioremediation of Uranium with Emulsified Vegetable Oil as the Electron Donor", *Environ. Sci. Technol.*, 47 (12), 6440–6448 (2013)
40. X. Rui, M-J. Kwon, E.J.O'Loughlin, S-D. Cheatam, J. Fein, B. Bunker, K. Kemner, **M. I. Boyanov**, "Bioreduction of hydrogen uranyl phosphate: mechanisms and U(IV) products", *Environ. Sci. Technol.*, 47 (11), 5668–5678 (2013)
39. T. Pasakarnis, **M. Boyanov**, K. Kemner, B. Mishra, E. O'Loughlin, G. Parkin, M. Scherer, "Influence of chloride and Fe(II) content on the reduction of Hg(II) by magnetite", *Environ. Sci. Technol.* 47, 6987−6994 (2013)
38. D. E. Latta, C.I. Pearce, K.M. Rosso, K.M. Kemner, **M.I. Boyanov,** "Reaction of U^{VI} with titanium-substituted magnetite: Influence of Ti on U^{IV} speciation", *Environ. Sci. Technol.*, 47, 4121−4130, (2013)

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1. “Uranium enrichment in the rhizosphere of a riparian wetland”, D. I. Kaplan, **M. I. Boyanov**, N. Losey, W. Kuehn, P. Lin, C. Xu, P. H. Santschi, W. Xing, P. Weisenhorn, K. M. Kemner. Session 11 at the ICOBTE & ICHMET 2023 Conference, September 6-10, 2023
2. (keynote) “Using X-ray Absorption Spectroscopy to Unravel the Sequestration Mechanisms of Radionuclides and Metalloids in Natural Sediments”, **M. I. Boyanov**, E. J. O’Loughlin, M.-J. Kwon, D. Kaplan, K. M. Kemner, Goldschmidt 2023, Lyon, France, July 13, 2023.
3. “Uranium distribution and speciation in a contaminated wetland.”. Kaplan, D. I., **M. I. Boyanov**, E. J. O'Loughlin, C. M. Connor, B. A. Powell, and K. Kemner. 2023. Chemistry Department Colloquium. Florida International University. February 22, 2023.
4. “Speciation of oxidized and reduced uranium in wetland sediments” **M. I. Boyanov**, E. J. O’Loughlin, D. Kaplan, L. Zhang, H. Dong, K. M. Kemner. Advanced Techniques in Actinide Spectroscopy Workshop, European Synchrotron Radiation Facility (ESRF), Grenoble, France, October 17, 2022
5. “Cryptic Sulfur Cycling in Iron-rich Stream and Wetland Hyporheic Zones”, C. Santelli, S. Srivastava, C. Rosenfeld, C. Ng, S. Perez, D. Kaplan, K. Kemner, E. O’Loughlin, P. Weisenhorn, **M. Boyanov**. Keynote in session “New Advances in Geobiology”, GSA Connects 2022 meeting in Denver, Colorado, October 9, 2022. https://doi.org/10.1130/abs/2022AM-379024
6. “Linked Iron, Sulfur, and Carbon Biogeochemical Cycling in Hydrologically Dynamic, Riparian Wetland Sediments”, Santelli C.M., Ng C, Torgeson J, Dunshee A, Rosenfeld C, Kaplan D, Kemner K, **Boyanov M**, O’Loughlin EJ, Weisenhorn P. American Geophysical Union Fall Meeting, San Francisco, December 15, 2020
7. “Uranium Hot-Spots in Wetlands Located 2, 3, and 8 Kilometers Downstream from a Fuel Fabrication Facility”. Kaplan, DI., KA Roberts, **MI Boyanov**, KM Kemner, EJ O’Loughlin, CJ Parker, BA Powell, JC Seaman, RJ Smith, P Weisenhorn.. 2020. Clay Mineral Society Annual Meeting, Richland WA, Oct. 18-23, 2020
8. “Uranium Partitioning to Sediments in a Contaminated South Carolina Wetland”, Kaplan D., Li D., Seaman J., Parker C., Powell B., **Boyanov M.I.**, O’Loughlin EJ, Weisenhorn P., Kemner K.M., American Geophysical Union Fall Meeting, San Francisco, December 9, 2019
9. “Uranium immobilization in wetlands varies spatially and temporally in response to hydrogeochemical conditions”, Kaplan DI, Seaman J., Parker C., Powell B., O’Loughlin EJ, Weisenhorn P., Kemner K.M., **Boyanov M.I.**, 71st Southeastern Regional Meeting of the American Chemical Society, Savannah, GA, October 21, 2019
10. “Nucleic acid detection and imaging with plasmonic nanosensors”, Crawford B.M., Strobbia P., Wang H.-N., Zentella R., **Boyanov M.I.**, Odion R., Pei Z.-M., Sun T.-P., Kemner K.M., Vo-Dinh T; SPIE Defense + Commercial Sensing Conference, Baltimore, MD, USA, April 14, 2019

11. “Reactions at the Fe mineral-water interface: Impact on contaminant fate”, Huhmann B. L., Rothwell K.A., **Boyanov M. I.**, Kemner K.M., Scherer M. M., Neumann A.. ACS Fall 2018, Boston, August 19, 2018
12. "Reduction of antimony(V) by coupled biotic and abiotic processes under sulfidogenic conditions”, C.R. Johnson, D.A. Antonopolous, **Boyanov M.**, Flynn T., Koval J.C., Kemner K.M., O’Loughlin E.J., Annual Meeting of the Society for Industrial Microbiology and Biotechnology, Hilton Chicago, IL, August 12-16, 2018
13. “Redox dynamic iron mineralogy and its effect on uranium transformations”, Kemner K., **Boyanov M.**, Latta D., Mishra B., O’Loughlin E., Scherer M., Yan S. Session on “Redox & Interfacial Dynamics Among Coupled Biogeochemical Cycles of Fe, S, Minerals & Organic Matter: Implications to Multiscale Behaviors of Contaminants, Carbon & Nutrients”, Spring ACS Meeting, New Orleans, March 19, 2018
14. “U(IV)-mineral complexation may explain U speciation in reduced sediments”, **Boyanov M**, Latta D, Scherer M, Mishra B, Pearce C, Rosso K, O'Loughlin E, Kemner K, session on “Metal and metalloid contaminant dynamics in environmental systems – novel insights from stable isotope and spectroscopic approaches”, Goldschmidt2017, Paris, France, August 16, 2017.
15. "Synchrotron-based micro and nanotomographic investigations of soil aggregate microbial and pore structure". O’Brien S., Whiteside M. D., Sholto-Douglas D., Antipova O., Bailey V., **Boyanov M. I.**, Dohnalkova A., Durall D. M., Gursoy D., Jones M. D., Kovarik L., Lai B., Roehrig C., Soriano Hoyuelos C., Sullivan S., Vogt S., Kemner K. M.. American Geophysical Union Fall Meeting, New Orleans, USA, December 11, 2017.
16. “Fe/Mn/S redox dynamics and effects on U/Hg transformations”, K. Kemner, E. O’Loughlin, **M. Boyanov**, D. Antonopolous, B. Mishra, T. Flynn. Session on Redox Cycling and Organomineral Interactions during the Environmental System Science Principal Investigator (PI) Meeting, Potomac, MD, April 27, 2016
17. “Reduction and reoxidation of uranium: mechanisms, species, and implications for dispersal”, **M. Boyanov**, D. Latta, B. Mishra, E. O'Loughlin, K. Kemner, session on “Environmental Impacts and Remediation of Mine, Fuel and Energy Extraction Processes”, Goldschmidt2015, Prague, Czech Republic, August 17, 2015.
18. “Biogeochemical cycling of Fe and S: Who are moving the electrons and where are the electons going?”, K. Kemner, E. O’Loughlin, **M. Boyanov**, D. Antonopolous, B. Mishra, T. Flynn, D. Latta, M. Scherer, M.-J. Kwon, T. DiCristina, K. Skinner. Session on “Coupled Cycling of Biogeochemical Critical Elements and Contaminants”, ACS Meeting, Denver, CO. March 22-26, 2015.
19. "Fe and S biogeochemistry in redox dynamic environments: progressing towards a predictive understanding of U biogeochemical transformations," K. M. Kemner, **M. I. Boyanov**, B. Mishra, T. Flynn, D. Antonopoulos, E. J. O'Loughlin, US DOE BER Environmental System Science Annual PI Meeting, Washington D.C., April 29, 2015.
20. "Novel synchrotron-based x-ray approaches to understanding controls on metal ion fate in subsurface and terrestrial environments," K. M. Kemner, **M. I. Boyanov**, B. Mishra, E. J. O'Loughlin, S. L. O'Brien, D. Sholto-Douglas, B. Lai, M. Balasubramanian, R. A. Gordon, S. D. Kelly, V. L. Bailey, American Chemical Society 249th National Meeting, Denver, Colorado, March 22-25, 2015.
21. “Uptake, reduction, and reoxidation mechanisms of uranium in biogeochemical systems studied by X-ray absorption spectroscopy”, **M. I. Boyanov**, D. E. Latta, B. Mishra, E. J. O’Loughlin, K. M. Kemner. Advanced Techniques for Actinide Spectroscopy (ATAS 2014), HZDR – Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany. November 4, 2014
22. “Stabilization of adsorbed U(IV) species at high-affinity mineral surface sites under reducing conditions”, D. E. Latta, B. Mishra, R. E. Cook, E. J. O’Loughlin, K. M. Kemner, **M. I. Boyanov.** ACS Fall 2014 meeting, session “Uptake and Incorporation of Radionuclides in Minerals“, San Francisco, CA, August 11, 2014
23. “Microbially catalyzed electron transfer to iron oxides: From atomic to micron scale”, K. Kemner, **M. Boyanov**, E. O’Loughlin, D. Scholto-Douglas, K. Skinner, B. Lai, D. Latta, . R. Cook, Session on “The Geochemical Cycling of Iron - From the atomic to the field scale”, Goldschmidt 2014, Sacramento, CA, June 10, 2014

24. “Electron Transfer and Atom Exchange Between Fe(II) and Structural Fe(III) in Clays”, M.Scherer, K. M. Rosso; B.L. Beard, C.M. Johnson, **M. Boyanov**, E. O’Loughlin, K. Kemner; TES/SBR Joint Investigators Meeting, Bolger Center, Potomac, MD, May 6-7, 2014
25. “Products of Uranium Reduction: Are we modeling the correct species?”, **M. Boyanov**, E. O’Loughlin, D. Latta, B. Mishra, C. Pearce, K. Rosso, M. Scherer, W.-M. Wu, C. Criddle, F.Yan, T. Marsh, J. Fein, B. Bunker, K. Fletcher, F. Löffler, R. Sanford, D. Watson, S. Brooks, K. Kemner; TES/SBR Joint Investigators Meeting, Bolger Center, Potomac, MD, May 13-15, 2013
26. “Uranium in Nanostructures Resulting from Biogeochemical Interactions”, K. Kemner, **M. Boyanov**, D. Latta, B. Mishra, E. O'Loughlin, 2013 MRS Spring Meeting & Exhibit, San Francisco, April 3, 2013.
27. “Reactivity of U(VI) with pure, oxidized, and Ti-substituted magnetites”, D. Latta, C. Pearce, C. Gorski, K. Rosso, E. O’Loughlin, K. Kemner, M. Scherer, **M. Boyanov**, Goldschmidt 2012, session 8f Inorganic redox processes at mineral surfaces and nanoparticles, Montreal, Canada, June 29, 2012
28. “Elucidating bacteria-mineral-contaminant interactions using electron and x-ray microspectroscopy approaches”, **M. Boyanov**, D. Latta, B. Mishra, S. Langley, S. Glasauer, B. Lai, E. O'Loughlin, K. Kemner, Advanced Photon Source Users’ Meeting, "Probing the Interface between Biological Systems and the Environment“ workshop, Argonne, IL, May 8, 2012
29. “Bioreduction of U(VI) in the presence of phosphate”, **M. Boyanov**, B. Mishra, D. Latta, X.Rui, M-J.Kwon, K.Fletcher, F. Loeffler, E. O'Loughlin, K. Kemner, EGU General Assembly 2012, “Nexus between microbes, metals and minerals in the environment” session,Vienna,Austria, April 24, 2012
30. “Reduction of UVI-phosphate Mineral by Metal Reducing Bacteria”, M.J.Kwon, X.Rui, **M.Boyanov**, E.J.O’Loughlin, S.Dunham-Cheatham, J.Fein, B.Bunker, K.Kemner, 2012 Joint Conference of the Geological Science & Technology of Korea, 18-20 April 2012, Seolak Daemyeong Resort, Korea
31. “XRF imaging and XAFS analysis of uranium dynamics in biostimulated field-site sediments”, EJ O'Loughlin, **MI Boyanov**, K Skinner, B Mishra, SD Kelly,W-M Wu, C Criddle, M Mueller, T Melhorn, D Watson, S Brooks, KM Kemner, 2012 Spring ACS Meeting, “Redox Transformations of Metals in Sediments at Molecular to Pore Scales” session, San Diego, March 25, 2012
32. “Mineral nucleation and redox transformations of U(VI) and Fe(II) species at a carboxyl surface”, **M. Boyanov**, E. O'Loughlin, K. Kemner, 2011 International Workshop on Subsurface Biogeochemistry, KIST Gangneung Institute, South Korea, October 21, 2011
33. “An Introduction to Synchrotron Radiation and x-ray Fluorescence Micro(spectro)scopy to Investigate the Mineral-microbe Environment”, K. Kemner, **M. Boyanov**, E. O'Loughlin, 2011 International Workshop on Subsurface Biogeochemistry, KIST Gangneung Institute, South Korea, October 21, 2011
34. "Biogeochemical Factors Controlling Green Rust Formation and Contaminant Reduction”, E. O'Loughlin, **M. Boyanov**, K. Kemner, 2011 International Workshop on Subsurface Biogeochemistry, KIST Gangneung Institute, South Korea, October 21, 2011
35. “Immobilizing a legacy: bacterial reduction of hexavalent uranium”, F. Löffler, **M. Boyanov**, K. Kemner, et al., Keynote presentation at the 8th International Symposium of Subsurface Microbiology, Garmisch-Partenkirchen, September 11, 2011
36. “Uranium dynamics in biostimulated field-site sediments: spatial distribution and formation of non-uraninite U(IV) phases”, **Boyanov M**, O'Loughlin E, Skinner K, Mishra B, Kelly S, Wu W-M, Criddle C, Mueller M, Melhorn T, Watson D, Brooks S & Kemner K, Goldschmidt 2011, Prague, August 14-19, 2011
37. “Effects of Microbial Activity and Electron Shuttles on the Reduction of U(VI) Under Sulfidogenic Conditions”, O'Loughlin EJ, **Boyanov MI**, Kwon MJ, Long P, Williams K & Kemner KM, Goldschmidt 2011, Prague, August 14-19, 2011
38. “Microbial Uranium Reduction and Monitoring Tools”, R. Sanford, C.Lundstrom, T. Johnson, K. Kemner, **M. Boyanov**, K. Pennell, K. Ritalahti, F. Loeffler, Subsurface Biogeochemistry Research PI meeting, Washington D.C., April 26-28, 2011
39. “Microbial and Geochemical Dynamics During Bioreduction Stimulated by Emulsified Vegetable Oil”, C. Schadt et al., Subsurface Biogeochemistry Research PI meeting, Washington D.C., April 26-28, 2011

40. “Fe(II)-Fe(III) Electron Transfer in Fe Oxides and Clays: Implications for Contaminant Transformations”, Scherer M, Gorski C, Schaefer M, Latta D, O'Loughlin E, **Boyanov M** & Kemner K, International Goldschmidt meeting, Knoxville TN, June 18, 2010
41. “X-ray biogeochemistry: elucidating bacteria-mineral-contaminant interactions at the molecular scale”, **M. Boyanov**, E. O’Loughlin, D. Sholto-Douglas, K. Skinner, M-J. Kwon, B. Mishra, K. Fletcher, F. Loeffler, M. Marshall, J. Fredrickson, T. Shibata, B. Lai, K. Kemner, APS Users’ Meeting, Argonne, May 4, 2010
42. “Electron shuttle effects on microbial community development under iron- and sulfate-reducing conditions”, E. J. O'Loughlin, D. A. Antonopoulos, B. S. Bates, **M. I. Boyanov**, J. M. Brulc, M. Egholm, A.Garoutte, T. Harkins, M. Kwon, P. Long, F. Meyer, J. Osterberger, B. B. Simen, K. A. Skinner, J. Wilkening, K. H. Williams, K. M. Kemner, Challenges in Environmental Molecular Microbiology, Argonne National Laboratory, April 26-27, 2010
43. “The utility of hard x-ray synchrotron radiation for environmental microbiology” , K. M. Kemner, **M. Boyanov**, E. J. O’Loughlin, D. Sholto-Douglas, K. Skinner, B. Lai, R. E. Cook, E. Carpenter, V. G. Harris, S. D. Kelly, K. H.Nealson, Challenges in Environmental Molecular Microbiology, Argonne National Laboratory, April 26-27, 2010
44. “Microbial communities and ecosystem function: Challenges of making white boxes out of black boxes”, D. Antonopolus, A. Ammar, B. S. Bates, **M. I. Boyanov**, M. H. Domanus, M. J. Kwon,P. Long, F. Meyer, E. O’Loughlin, D. Sholto Douglas, K. Skinner, K. H. Williams, K. M. Kemner, Challenges in Environmental Molecular Microbiology, Argonne National Laboratory, April 26-27, 2010
45. “The influence of ligands on the formation of non-uraninite U(IV) phases during biotic and abiotic U(VI) reduction”, **M. Boyanov**, E. O’Loughlin, M-J. Kwon, K. Skinner, B. Mishra, C. Criddle, W-M. Wu, F. Yang, T. Marsh, K. Fletcher, F. Loeffler, K. Kemner, 2010 Subsurface Biogeoscience Research PI meeting, Washington D.C. , March 30, 2010.
46. “Contaminant Interactions with Green Rusts: Abiotic and Biotic Pathways”, M. Scherer, **M. Boyanov**, J. Coates, C. Gorski, K. Kemner, P. Larese-Casanova, D. Latta, E. O’Loughlin, S. Smith, M. St. Clair, K. Weber, 233rd American Chemical Society (ACS) Meeting, Chicago, March 25-29, 2007
47. “Geomicrobiology investigations using x-ray and electron microprobes”, K.Kemner, **M.Boyanov**, et al., Workshop on Biological Applications of X-Ray Microprobes, Northwestern Hospital, Chicago, Illinois, November 15 and 16, 2007.
48. “Formation of Minerals Inside and Near Single Bacterial Cells: Elemental Content and Valence State at the Sub-Micron Scale”, **M. Boyanov**, B. Lai, S. Glasauer, M. Marshall, S. Langley, A. Dohnalkova, J. Fredrickson, T. Beveridge, K. Kemner; X-ray Spectromicroscopy: a Tool for Environmental Science Workshop, 2006 Users Meeting, Argonne National Laboratory, Argonne, IL; May 1-5, 2006.
49. “The use of synchrotron-based techniques for biogeoscience research,” K. M. Kemner, **M. Boyanov**, E. J. O’Loughlin, S. D. Kelly, B. Ravel; Synchrotron Environmental Science-III Conference, Brookhaven National Laboratory, Upton, NY, September 19-21, 2005.
50. “X-ray microprobe investigations of mineral-metal-microbe interfaces”, K.M. Kemner, S.K. Kelly, **M.I. Boyanov**, B.Lai, S. Glasauer, S. Langley, C. Kulpa, T. Beveridge, K. Nealson; 15th Annual Goldschmidt Conference, Moscow, ID; May 20-25, 2005.
51. “Effect of microbial exopolymers on the spatial distributions and transformations of Cr and U at the bacteria-geosurface interface”, Kemner, K.;Kelly, S.;O'Loughlin, E.;**Boyanov, M.**;Nealson, K.;Glasauer, S.;Beveridge, T.;Lai, B.;Maser, J.;Cai, Z. DOE-NABIR PI Meeting; Warrenton, VA; Apr 18-20, 2005
52. “Metal sorption and the bacterial membrane : implications for biomineralization and fossilization”, S. M. Glasauer, C. Cousins; S. Langley, T. Beveridge, **M. Boyanov**, B. Lai, K. Kemner, European Geoscience Union General Assembly 2005; Vienna, Austria; Apr 24-29, 2005
53. “Mechanism of lead adsorption to fatty acid Langmuir monolayers by XAFS spectroscopy “, **M.Boyanov**, T.Shibata, J.Kmetko, A.Datta, P.Dutta, B.Bunker. APS Users’ Meeting, Argonne, March 2003

54. “Metal Adsorption onto Bacterial Surfaces:The Use of X-ray Absorption Fine Structure Measurements to Determine Metal Binding Mechanisms “, J.Fein, P.Wightman, D.Fowle, N.Yee, K.Kemner, S.Kelly, **M.Boyanov**, B.Bunker. SES-II Conference, Argonne, May 2002
55. “XAFS investigations of interactions of U(VI) with minerals and microbes”, S.Kelly, K. Kemner, E.O’loughlin, R.Cook, R.Csencsits, J.Fein, D.Fowle, **M.Boyanov**, B.Bunker, N.Yee, J.Coates, J.Lack, S.Chaudhuri, S.O’Connor. 11th Users Meeting for the APS, Argonne, IL, October 2001
56. “X-ray Investigations of Microbe-Mineral-Contaminant Interactions,” Kemner, K.M., Lai, B., Maser, J., Pratt, S.T., Cai, Z., Legnini, D., Ilinski, P., Rodrigues, W.,Germino, K., Kelly, S., Belz, A., Nealson, K., Schneegurt, M., Kulpa, C., Mundo, M.,Fowle, D., **Boyanov, M.**, Bunker, B., Fein, J., Tischler, M., Fredrickson, J., Gorby, Y., Smith, S.,and Zachara, J., Natural and Accelerated Bioremediation Meeting, DOE Office of Biological and Environmental Research, Washington, D.C., January 31-February 2, 2000.

INVITED SEMINAR PRESENTATIONS

1. “Wetland rhizosphere: Unique iron and organic matter properties enhancing uranium concentration.“, Kaplan, D. I., **M. I. Boyanov**, E. J. O'Loughlin, N. Losey, and K. Kemner. Savannah River Ecology Laboratory Seminar Series. University of Georgia. Aiken, SC. April 4, 2023.
2. “Understanding contaminant and iron biogeochemistry: The X-ray advantage”, **M. Boyanov**, Colloquium, Department of Geology, University of Illinois at Urbana-Champaign, February 1, 2013.
3. "Tracking the transformations of contaminants and Fe phases using synchrotron x-ray absorption spectroscopy”, **M. Boyanov**, E. O'Loughlin, K. Kemner, Seminar at the KIST Seoul Institute, Korea, October 18, 2011.
4. “Uranium Transformations by Coupled Microbial and Geochemical Processes: Rust-Breathing Bacteria and Our Cold War Legacy”, E.O’Loughlin, **M.Boyanov**, K.Kemner, et al., Seminar at the McCormick School of Engineering of Northwestern University, September 30, 2011.
5. “Differences in the electron transfer mechanisms of gram-negative vs. gram-positive bacteria suggested by the products of uranyl reduction”, **M.Boyanov**, K.Fletcher, E.O’Loughlin, M.Kwon, B.Mishra, K.Skinner, D. Sholto-Douglas, F. Loeffler, K.Kemner. Biosciences Division seminar, Argonne National Laboratory, December 3, 2009.
6. “Investigating mineral-metal-microbe interactions with hard x-ray radiation”, K.Kemner, E. O’Loughlin, **M.Boyanov**, S.Kelly, D.Sholto-Douglas, K.Skinner, B.Lai, Y.Londer,M.Schiffer, R.Cook, M.Marshall, J.Fredrickson, P.Jardine, D.Watson, J.Banfield, Y. Suzuki, Seminar at the University of Illinois, Urbana-Champaign, September 11, 2009.
7. “Effect of electron shuttles on Fe reduction”, E.O’Loughlin, **M.Boyanov**, S.Kelly, K.Kemner, et al., Seminar at the University of Iowa, Dept of Civil and Environmental Engineering, January 21, 2009.
8. “Investigation of mineral-metal-microbe interactions with hard x-rays”, K.Kemner, **M.Boyanov**, et al., Pennsylvania State University Environmental Engineering Department Colloquium, State College, Pennsylvania, November 2, 2007.
9. “Biogeochemical processes affecting uranium in calcium carbonate systems – Atomic-scale interactions related to macroscopic properties” S.D. Kelly, K.K. Kemner, S.C. Brooks, J. Fredrickson, T.Rasbury, C. Spotl, N.Sturchio, P. Fenter, S. Chattopadhyay, **M. Boyanov**, E. O’Loughlin, J. Kropf, Geological Sciences Colloquium, Indiana University, Bloomington, IN, April 25, 2005.
10. “EMSI Collaborative Studies with the ER Division at ANL,” K. M. Kemner, **M. Boyanov**, EMSI Review, University of Notre Dame, Notre Dame, Indiana, September 24, 2003.
11. “X-ray and electron micro(spectro)scopy investigations of internal biomineralization products produced by dissimilatory metal reducing bacteria (DMRB)“, **M.Boyanov**, S.Glasauer, B.Lai, K.Kemner, T.Beveridge. EMSI Review Meeting, University of Notre Dame, Sept 24, 2003

CONTRIBUTED TALKS AND POSTERS

1. D. Dwivedi, C. Steefel, B. Arora, J. Banfield, J. Bargar, **M.I. Boyanov**, S.C. Books, X. Chen, S. Hubbard, D. Kaplan, K.M. Kemner, E.J. O'Loughlin, E.M. Pierce, S.L. Painter, T. Scheibe, H. Wainwright, K.H. Williams, M. Zavarin. "From Legacy Contamination to Watershed Systems Science: A Review of Scientific Insights and Technologies Developed through DOE-Supported Research in Water and Energy Security", American Geophyiscal Union Meeting in San Francisco, CA, December 11, 2023
2. Rushworth D, Cravotta III C, **Boyanov M**, O'Loughlin E, Kemner K, Chan C."Developing an iron biomineral method for sustainable rare earth recovery from acid mine drainage". American Geophyiscal Union Meeting in San Francisco, CA, December 11, 2023
3. Kaplan D, **Boyanov M**, Lin P, Losey N, Xu C, O'Loughlin E, Sentschi P, Xing W, Kuhne W, Kemner K. "Uranium Biogeochemistry in the Rhizosphere of a Riparian Wetland", American Geophyiscal Union Meeting in San Francisco, CA, December 13, 2023
4. Lin P, **Boyanov M**, O'Loughlin E, Xing W, Kemner K, Kaplan D. "Environmental factors affecting the sorption of uranium and nickel in a contaminated riparian wetland in South Carolina", American Geophyiscal Union Meeting in San Francisco, CA, December 13, 2023
5. Kemner K, Stetten L, **Boyanov M**, O'Loughlin E, Scholto-Douglas D, Sterbinsky G, Kastengren A, Finfrock Z, Michalska K, Lavens A, Antipova O, Chang C, Lai B, Gursoy D, Marin F, DeCarlo F, Shevchenko P, O'Brien S, Dohnalkova A, Kovarik L, Ward N, Bailey V, Megonigal P, Song B, Day D, Weintraub M, Machado-Silva F, Peixoto R, Kovach M. "X-ray Imaging Across Scales to Understand Environmental System Function". American Geophyiscal Union Meeting in San Francisco, CA, December 13, 2023
6. Weintraub M, Adebayo M, Peixoto R, Bond-Lamberty B, **Boyanov M**, Chen X, Day D, Ding J, Doro K, Emanuel E., Ehosioke S, Forbich I, Hopple A, Kemner K, Li B, O'Loughlin E, Silva F, McDowell N, O'Meara T, Megonigal P, Morris K, Patel K, Pennington S, Myers-Pigg A, Rod K, Sandoval L, Spanbauer T, Stetten L, Pushpajom Thomas S, Thornton P, Ward N, Weisenhorn P, Song B, Zheng J, Bailey V. "Integrating ecological and hydrological observations, experiments, molecular analyses, and multi-scale modeling to improve our predictive understanding of the terrestrial-aquatic interface". American Geophyiscal Union Meeting in San Francisco, CA, December 13, 2023
7. Kaplan, D.I., P. Lin, E. J. O'Loughlin, **M. I. Boyanov**, and K. M. Kemner. 2023. "Technical support for Monitored Natural Attenuation of a uranium, thorium, and mercury contaminated wetland along the Savannah River, USA." RemPlex 2023 Global Summit, Richland, WA, Nov. 13-17, 2023.
8. Bailey B, Patel K, Rod K, Weintraub M, Megonigal P, Bond-Lamberty B, **Boyanov M**, Chen X, Conroy N, Day D, Doro K, Ehosioke S, Fields D, Hopple A, Johnson L, Kemner K, Machado-Silva F, McDowell N, McKever S, Morris K, Musci J, Myers-Pigg A, Norris C, O'Loughlin E, O'Meara T, Peixoto R, Pennington S, Phillips E, Regier P, Rich R, Sandoval L, Spanbauer T, Stearns A, Stetten L, Thornton P, Ward, N, Weisenhorn P, Wilson S, Zheng J. "Comparing and contrasting soil biogeochemical characteristics in freshwater vs. estuarine coastal systems", Annual Ecological Society of America meeting in Portland, OR, August 8, 2023
9. Myers-Pigg A, Pennington S, Homolka K, Lewis A, Otenburg O, Patel K, Regier P, Bowe M, **Boyanov M**, Conroy N, Day D, McElhinny J. "Biogeochemical cycling in coastal terrestrial-aquatic interfaces: Results from the EXCHANGE consortium". Annual Ecological Society of America meeting in Portland, OR, August 8, 2023
10. O'Loughlin EJ, Boever A, **Boyanov MI**, Kaplan DI, Parker C, Powell B, Taillefert M, Weisenhorn P & Kemner KM, "Laboratory and Field Studies of the Redox Dynamics of Fe and U in Fe Flocs in Riparian Wetlands within the Tims Branch Watershed, Savannah River Site, USA", Goldschmidt Conference in Lyon, France, July 12, 2023
11. Stetten L, **Boyanov MI**, O'Loughlin EJ, Bailey V, Day D, Homolka KK, Hopple AM, Kovach M, Bittencourt Peixoto R, Machado-Silva F, Mcdowell NG, Megonigal P, Wilson S, Myers-Pigg AN, Otenburg O, Ward ND, Weintraub M, and Kemner KM, "Iron Redox Dynamics Across Coastal Terrestrial-Aquatic Interfaces: Field Study in The Great Lakes and Chesapeake Bay Regions", Goldschmidt Conference in Lyon, France, July 13, 2023

12. Zhang Y, **Boyanov MI**, O'Loughlin EJ, Kemner KM, Kim H-S, and Kwon MJ,"Elevated Antimony Concentration in Soils may Stimulate Microorganisms to Utilize Sb(V) for Anaerobic Respiration", Goldschmidt Conference in Lyon, France, July 13, 2023
13. Stetten L., **Boyanov MI**, O'Loughlin EJ., Day D, Homolka KK, Hopple A, Kovach M, Peixoto R, Machado-Silva F, McDowell N, Megonigal P, Wilson S, Myers-Pigg A, Otenburg O, Ward ND, Weintraub M., Kemner KM, Bailey VL. "Iron Redox Biogeochemistry Across Coastal Terrestrial-Aquatic Interfaces: Field Study in the Great Lakes and Chesapeake Bay Regions", Environmental System Science PI Meeting, Bethesda, MD, May 16, 2023
14. Myers-Pigg A., Pennigton S, Homolka K, Lewis A, Otenburg O, Patel K, Regier P, Bowe M, **Boyanov MI**, Conroy N, Day D, McElhinny J, Norris C, O'Loughlin EJ, Roebuck Jr JA, Stetten L., Kemner KM, Ward ND, Bailey VL. "Biogeochemistry of Soils, Sediments, and Surface Waters Across the Upland-to- Wetland Gradient of Coastal Interfaces: Results from the EXCHANGE Consortium", Environmental System Science PI Meeting, Bethesda, MD, May 16, 2023
15. O'Loughlin EJ, Boever A, **Boyanov MI**, Kaplan DI, Parker C, Powell B, Taillefert M, Weisenhorn P, Kemner KM. "Laboratory and Field Studies of the Redox Dynamics of Iron and Uranium in Iron Flocs in Riparian Wetlands Within the Tims Branch Watershed, Savannah River Site", Environmental System Science PI Meeting, Bethesda, MD, May 16, 2023
16. Kaplan DI, Smith R, Parker C, Roberts K, Hazenberg P, Morales J, , O'Loughlin EJ, **Boyanov MI**, Weisenhorn P, Powell B, Orlandini K, Bowman M, Chu R, Dohnalkova A, Kovarik L, Kukkadapu R, Qafoku O, Toyoda J, Kemner KM. "Transport and Accumulation of Uranium in a Fluvial Wetland: Importance of Hydrology and Colloids", Environmental System Science PI Meeting, Bethesda, MD, May 16, 2023
17. **Boyanov MI**, O'Loughlin EJ, Weisenhorn P, Boever A, Taillefert M, Powell B, Parker C, Kaplan DI, Kemner KM. "Speciation of Iron and Uranium in Sediments Collected at Savannah River National Laboratory", Environmental System Science PI Meeting, Bethesda, MD, May 16, 2023
18. Kemner KM, Weisenhorn P, **Boyanov MI**, Kaplan DI, Li D, Powell B, Lawrence A, Henry C, Flynn T, Kwon M-J, Dong Y, Qafoku O, Dohnalkova A, Kukkadapu R, Chu R, Segre C, Santelli C, Ng C, Taillefert M, Catalano J, Giammar D, Sentchi P, Chan C, O'Loughlin EJ. "The Argonne National Laboratory Subsurface Biogeochemical Research Program Science Focus Area: Wetland Hydro-Biogeochemistry", Environmental System Science PI Meeting, Bethesda, MD, May 16, 2023
19. Boever A, Magette E, Kaplan DI, **Boyanov MI**, O'Loughlin EJ, Kemner KM, Taillefert M. "Effect of Hydrological Variations on Biogeochemical Processes Within Contaminated Stream Sediments and the Use of Uranium as a Geochemical Tracer for Recent Changes to the Sediment Redox State", Environmental System Science PI Meeting, Bethesda, MD, May 16, 2023
20. Kilber, A. W. N., **Boyanov MI**, Kemner KM, E. J. O'Loughlin. "Rhenium (IV) Enrichment in Sedimentary Marine Environments and the Mechanisms by which Rhenium (VII) is Reduced: Investigating a Paleo-Redox Indicator", ACS Spring Meeting, Indianapolis, March 29, 2023
21. O'Loughlin EJ, **Boyanov MI**, Kemner KM. "Tellurium Goes for a Ride on the "Ferrous" Wheel: Reduction of Te(VI) and Te(IV) by Iron(II)-Bearing Minerals", ACS Spring Meeting, Indianapolis, March 27, 2023
22. **Boyanov MI**, O'Loughlin EJ, Weisenhorn P, Powell B, Parker C, Zhang L, Dong H, Kaplan DI, Kemner KM. "U and Fe Biogeochemistry in Wetland Sediments at the Savannah River Site", AGU Fall Meeting, Chicago, December 13, 2022
23. Stetten L., **Boyanov MI**, O'Loughlin EJ., Bailey VL, Day D, Homolka KK, Hopple A., Kovach M., McDowell N., Megonigal P, Myers-Pigg A., Ward ND, Weintraub M., Wilson S., Kemner KM, "X-ray Absorption Spectroscopy to Unravel Fe Speciation in Soil and Sediment Cores from Redox-Dynamic Marine and Freshwater Coastal Environments", AGU Fall Meeting, Chicago, December 14, 2022
24. O'Loughlin EJ, **Boyanov MI**, Kemner KM."Tellurium Goes for a Ride on the "Ferrous" Wheel: Reduction of Te(VI) and Te(IV) by Iron(II)-Bearing Minerals", AGU Fall Meeting, Chicago, December 13, 2022
25. Kemner KM, **Boyanov MI**, Kaplan DI, Bowman M., Orlandini K., Chu R, Dohnalkova A., Kovarik L., Kukkadapu RK, Ng C., Qafoku O., Santelli CM, Toyoda J., O'Loughlin EJ. "Molecular- to Micron-

Scale Investigations of Uranium-Containing Colloids from a Riparian Wetland", AGU Fall Meeting, Chicago, December 15, 2022

26. D.E. Latta, T. Robinson, K. Kemner, E. J. O'Loughlin, **M. Boyanov**, M. Scherer. "Geochemical and mineral controls on the speciation of uranium in the subsurface", session Radiochemistry and f-block chemistry at the ACS Midwest Regional Meeting, October 21, 2022.
27. Kemner KM, O'Loughlin EJ, Weisenhorn P, **Boyanov MI**, Kaplan DI, Li D, Segre C, Sholto-Douglas D, Powell B, Lawrence A, Kwon M-J, Yan S, Dong Y, Henry C, Santelli C, Ng C, Taillefert M, Chan C, Sentchi P. "The Argonne Environmental System Science Program SFA: Wetland Hydrobiogeochemistry", Environmental System Science Principal Investigator (PI) Meeting, Virtual and Bethesda, MD. May 24-26, 2022
28. **Boyanov MI**, O'Loughlin EJ, Weisenhorn P, Powell B, Parker C, Zhang L, Dong H, Kaplan DI, Kemner KM. "Effect of Organic Ligands on U and Fe Biogeochemistry in Wetland Sediments", Environmental System Science Principal Investigator (PI) Meeting, Virtual and Bethesda, MD. May 24-26, 2022
29. O'Loughlin EJ**, Boyanov MI,** Kaplan DI, Parker C, Powell B, Seaman J, Weisenhorn P, Kemner KM. "Biogeochemical Dynamics of Fe and U in Fe Flocs in Tims Branch, Savannah River Site under Oxic/Anoxic Cycling", Environmental System Science Principal Investigator (PI) Meeting, Virtual and Bethesda, MD. May 24-26, 2022
30. Kaplan D, Roberts K, Parker C, Hazenberg P, Morales J, Bazgirkhoob H, Powell B, O'Loughlin EJ, **Boyanov MI**, Weisenhorn P, Kemner KM. "Watershed-Scale Hydrobiogeochemical Properties that Cause Contaminant Hot Spots", Environmental System Science Principal Investigator (PI) Meeting, Virtual and Bethesda, MD. May 24-26, 2022
31. K. Kemner, **M. Boyanov,** E. O'Loughlin, D. Kaplan, P. Weisenhorn, K. Rod, R. Kukkadapu, O. Qafoku, N. Hess, R. Chu, A. Dohnalkova, "Contaminant Interactions with Colloids Within Redox Dynamic Wetland Environments" in session "Nano-Colloids to Particulate Matter: Influence on Biogeochemical Cycles of Elements in Terrestrial Environments", AGU Fall Meeting, New Orleans, December 15, 2021
32. S. Srivastava, C. M. Santelli, C. Ng, C. Rosenfeld, D. Kaplan, K. Kemner, E. O'Loughlin, P. Weisenhorn, **M. Boyanov**, S. Perez "Influence of Hyporheic Exchange on Coupled S-Fe-C Biogeochemical Cycling and Microbial Community Function in Riparian Wetlands", in session "Microbes in Biogeochemical Cycles: Linking Responses to Ecosystem Processes and Environmental Change", AGU Fall Meeting, New Orleans, December 14, 2021
33. D. Day, **M. Boyanov**, K. Kemner, and M. N. Weintraub, ''Vegetation Influences on Soil and Microbial Function at Transition Zones Within the Terrestrial-Aquatic Interface", in session "Integrating and Advancing Understanding of Coastal Ecosystem Structure, Function and Dynamics", AGU Fall Meeting, New Orleans, December 15, 2021
34. "The Argonne National Laboratory Subsurface Biogeochemical Research Program SFA: Wetland Hydrobiogeochemistry", Kemner KM, Weisenhorn P, **Boyanov MI**, Kaplan DI, Li D, Powell B, Lawrence A, Henry C, Flynn TM, Kwon M-J, Yan S, Wang Y, Deng Y, Dong Y, Hess N, Segre C, Mishra B, Santelli C, Ng C, Taillefert M, Catalano J, Giammar D, Meile C, Seaman J, Sentchi P, Chan C, O'Loughlin EJ. Environmental System Science Principal Investigator (PI) Meeting, Virtual and Bethesda, MD. August 17-19, 2021
35. "Hydrobiogeochemical Processes Impacting Uranium Speciation and Transport in Tims Branch, Savannah River Site", O'Loughlin EJ, **Boyanov MI**, Kaplan DI, Orlandini K, Parker C, Powell B, Seaman J, Weisenhorn P, Kemner KM. Environmental System Science Principal Investigator (PI) Meeting, Virtual and Bethesda, MD. August 17-19, 2021
36. "Molecular to Core-Scale Biogeochemistry at Tims Branch Wetland, Savannah River Site", **Boyanov MI**, O'Loughlin EJ, Weisenhorn P, Powell B, Parker C, Zhang L, Dong H, Boever A, Taillefert M, Seaman J, Kaplan DI, Kemner KM. Environmental System Science Principal Investigator (PI) Meeting, Virtual and Bethesda, MD. August 17-19, 2021
37. "Influence of hyporheic exchange on coupled S-Fe-C biogeochemical cycling and microbial community function in riparian wetlands at the Savannah River Site", Santelli C.M., Srivastava S, Ng C, Perez S, Rosenfeld C, Kaplan D, Kemner K, O'Loughlin E, Weisenhorn P, **Boyanov M**,

Environmental System Science Principal Investigator (PI) Meeting, Virtual and Bethesda, MD. August 17-19, 2021

38. O'Loughlin, E., **M. Boyanov**, D. I. Kaplan, P. Weisenhorn, K. Kemner. 2020. Iron Flocs as Biogeochemical Dynamic Reservoirs of Uranium in Tims Branch Wetlands, Savannah River Site. Asia Oceania Geosciences Society - AOGS 17th Annual Virtual Meeting. Hongcheon, Korea. 28 Jun to July 4, 2020.
39. "Uranium bioreduction in the presence of Fe(III)-bearing clay mineral and organic acids", Zhang L, Dong H, **Boyanov MI**, Kemner KM, O'Loughlin EJ. Goldschmidt2020, Virtual, 21-26 June 2020
40. "Biogeochemistry and Contaminant Speciation in Savannah River Site Sediments", **Boyanov MI**, O'Loughlin EJ, Weisenhorn P, Kaplan DI, Powell B, Parker C, Shen Y, Zhang L, Dong H, Kemner KM. Environmental System Science Principal Investigator (PI) Meeting, Bethesda, MD. May 19-20, 2020
41. "Microtopographic controls on microbial community structure", Weisenhorn P, O'Loughlin EJ, **Boyanov MI,** Gu T, Kaplan DI, Zhang Q, Henry C, Kemner KM. Environmental System Science Principal Investigator (PI) Meeting, Bethesda, MD. May 19-20, 2020
42. "Coupled Iron and Uranium Biogeochemistry in Tims Branch, Savannah River Site", O'Loughlin EJ, **Boyanov MI**, Kaplan DI, Orlandini K, Weisenhorn P, Kemner KM. Environmental System Science Principal Investigator (PI) Meeting, Bethesda, MD. May 19-20, 2020
43. "The Argonne National Laboratory Subsurface Biogeochemical Research Program SFA: Wetland Hydrobiogeochemistry" Kemner KM, Weisenhorn P, **Boyanov MI**, Kaplan DI, Seaman J, Li D, Powell B, Lawrence A, Henry C, Flynn TM, Kwon M-J, Yan S, Wang Y, Deng Y, Dong Y, Hess N, Segre C, Mishra B, Santelli C, Ng C, Taillefert M, Catalano J, Giammar D, Meile C, O'Loughlin EJ. Environmental System Science Principal Investigator (PI) Meeting, Bethesda, MD. May 19-20, 2020
44. "Influence of hyporheic exchange on coupled S-Fe-C biogeochemical cycling in riparian wetland sediments", Santelli C.M., Ng C, Srivastava S, Dunshee A, Kaplan D, Kemner K, **Boyanov M**, Environmental System Science Principal Investigator (PI) Meeting, Bethesda, MD. May 19-20, 2020
45. "Investigating the role of biogeochemical processes and hyporheic exchange in Fe-S cycling in riparian wetlands", Dunshee A, Ng C, Santelli C, Kaplan DI, Kemner K.M., Torgeson J, Rosenfeld C, **Boyanov M.I.**, AGU Fall Meeting, San Francisco, CA, December 9, 2019
46. "Applications of SERS-based Plasmonic Nanoprobes: From Gastrointestinal Cancer Diagnostics to Sensing and Imaging of Biotargets within Plant Systems," Crawford BM, Wang HN, Strobbia P, Zentella R, **Boyanov MI**, von Furstenberg R, Garman KS, Pei ZM, Sun TP, Kemner KM, Vo- Dinh, T, Fitzpatrick Institute for Photonics Annual Symposium, Duke University, 2019.
47. "Spectroscopic and Theoretical Investigation Insights into Stable Nano-Hup Mediated by Bacteria", Nie X, Dong F, Liu M, O' Loughlin EJ, **Boyanov MI**, Kemner KM. Goldschmidt2019, Barcelona, Spain, August 19, 2019
48. "Biotic and Abiotic Controls on Iron Reduction and Biomineralization over Broad Geochemical Conditions", Dong Y, Sanford R, **Boyanov M**, Flynn T, O'loughlin E, Kemner K, Fouke B. Goldschmidt2019, Barcelona, Spain, August 19, 2019
49. "Uranium Speciation and Dynamics in Contaminated Wetland Sediments", **Boyanov M**, O'Loughlin EJ, Kaplan DI, Kemner KM, Goldschmidt2019, Barcelona, Spain, August 19, 2019
50. "Hydrobiogeochemical Transformations of Fe and U in Sediment, Stream, and Rhizosphere Environments within Riparian Wetlands", Kemner K, **Boyanov M**, Weisenhorn P, Kaplan D, O'Loughlin E., Goldschmidt2019, Barcelona, Spain, August 23, 2019
51. "In vivo detection of microRNA within plants using plasmonic nanosensors", Crawford B.M., Strobbia P., Wang H.-N., Zentella R., Boyanov M.I., Pei Z.-M., Sun T.-P., Kemner K.M., Vo-Dinh T., SPIE-Fabrication, Characterization, and Applications XVII, San Diego CA, August 12, 2019
52. "Zn Speciation and Transformation in Soils and Sediments Along the Ground Transportation Route of Zn Ore to a Refinery", Kwon M-J, **Boyanov M.I.**, Kemner K.M., O'Loughlin EJ, Mishra B, Jeon S-K, Lee S, Asia-Oceania Geosciences Annual Meeting, Singapore, July 28, 2019
53. "Biogeochemical Characteristics of Antimony (Sb)-contaminated Soils from a Refinery and a Military Shooting Range", Park S-C, **Boyanov M**, Kemner KM, O'Loughlin EJ, Kwon M-J., Asia-Oceania Geosciences Annual Meeting, Singapore, July 28, 2019

54. "Savannah River Site Sediments: Biogeochemistry and U speciation", **Boyanov MI**,O'Loughlin EJ, Weisenhorn P, Flynn TM, Kaplan DI, Powell B, Martinez N, Shen Y, Nie X, Zhang L, Dong H, Kemner KM. Environmental System Science Principal Investigator (PI) Meeting, Potomac, MD. April 29 - May 1, 2019
55. "Modeling Microbial Controls on Biogeochemical Processes at the Savannah River Site", Weisenhorn P, Meile C, Kaplan DI, O'Loughlin EJ, **Boyanov MI,** Zhang Q, Gu T, Powell B, Flynn TM, Henry C, Kemner KM. Environmental System Science Principal Investigator (PI) Meeting, Potomac, MD. April 29 - May 1, 2019
56. "Influence of Hyporheic Exchange on Coupled S-Fe-C Biogeochemical Cycling in Riparian Wetland Sediments", Santelli CM, Ng C, Dunshee A, Rosenfeld C, Kaplan D, Kemner K, O'Loughlin EJ, Weisenhorn P, **Boyanov M**. Environmental System Science Principal Investigator (PI) Meeting, Potomac, MD. April 29 - May 1, 2019
57. "Iron Flocs as Biogeochemically Dynamic Reservoirs of Uranium in Tims Branch Wetlands, Savannah River Site", O'Loughlin EJ, **Boyanov MI**, Kaplan DI, Orlandini K, Weisenhorn P, Kemner KM. Environmental System Science Principal Investigator (PI) Meeting, Potomac, MD. April 29 - May 1, 2019
58. "Argonne Wetland Hydrobiogeochemistry SFA", Kemner KM, Weisenhorn P, **Boyanov MI**, Kaplan DI, Seaman J, Li D, Powell B, Mahmoudi M, Lawrence A, Flynn TM, Kwon M-J, Yan S, Wang Y, Deng Y, Dong Y, Hess N, Pasa-Tolic L, Rodriguez R, Segre C, Mishra B, Chakraborty R, Adams P, Arkin A, Santelli C, Ng C, Taillefert M, Catalano J, Giammar D, Meile C, O'Loughlin EJ. Environmental System Science Principal Investigator (PI) Meeting, Potomac, MD. April 29 - May 1, 2019
59. "Application of plasmonic nanoprobes for SERS sensing and imaging of biotargets in plant systems", Strobbia P., Crawford B.M., Wang H.-N., Zentella R., **Boyanov M.I.**, Pei Z.-M., Sun T.-P., Kemner K.M., Vo-Dinh T., Plasmonics in Biology and Medicine XVI, San Francisco, CA, February 4, 2019
60. "Multifunctional SERS-based Inverse Molecular Sentinel (iMS) Nanoprobes for Sensing and Imaging within Arabidopsis Leaves," BM Crawford, P Strobbia, HN Wang, R Zentella, **MI Boyanov**, ZM Pei, TP Sun, KM Kemner, T Vo- Dinh, Fitzpatrick Institute for Photonics Annual Symposium, Duke University, 2018
61. "The utility of EXAFS in discovering novel species relevant to U mobility in reducing environments", **M. Boyanov**, E. O'Loughlin, D. Kaplan, K. Kemner. The international XAFS2018 conference, Krakow, Poland, July 22-27, 2018
62. "Geochemical and microbial characteristics of waste disposal sites affected by seawater intrusion and high alkalinity", Ham B., Kwon J., **Boyanov M.I.**, Kemner K.M., Kwon M.-J., Session on "Microbial interactions with minerals and metals", Goldschmidt2018, Boston, August 13, 2018
63. "Adsorption of selenite by *Bacillus subtilis*: the overlooked role of cell envelope sulfhydryl sites in microbial conversion of Se(IV)", Yu Q., **Boyanov M.I.**, Liu J., Kemner K.M., Fein J.B., Session on "Biogeochemistry of Oxyanion-forming Elements: the Good, the Bad and the Ugly", Goldschmidt2018, Boston, August 13, 2018
64. "Redox Transformations of U, Hg, and As in Iron Oxide and Clay Systems ", **Boyanov M.**, Latta D., Scherrer M., Mishra B., Huhmann B., Neumann A., O'Loughlin E., Kemner K.. Environmental System Science Principal Investigator (PI) Meeting, Potomac, MD. May 1-2, 2018
65. "Elemental Content, U Redox Dynamics, and Microbial Communities in Wetland Sediment Cores from Tims Branch, Savannah River Site ", O'Loughlin E., **Boyanov M.**, Flynn T., Kaplan D., Powell B., Weisenhorn P., Kemner K. Environmental System Science Principal Investigator (PI) Meeting, Potomac, MD. May 1-2, 2018
66. "Effects of Fe(III) Inputs on the Rate of Methanogenesis in Wetland Sediment Microcosms", Flynn T., Johnson L., Jensvold Z., **Boyanov M.**, Kemner K., O'Loughlin E., Environmental System Science Principal Investigator (PI) Meeting, Potomac, MD. May 1-2, 2018
67. "The Argonne National Laboratory Subsurface Biogeochemical Research Program SFA: Wetland Hydrobiogeochemistry", Kemner KM, Antonopoulos DA, Flynn TM, Henry C, Weisenhorn P, **Boyanov MI**, Mishra B, Segre C, Latta DE, Scherer MM, Kaplan D, Li D, Matinez N, Moysey S,

Powell B, Rodriguez R, Kwon M-J, Yan S, Adams P, Chakraborty R, Tfaily M, O'Loughlin EJ, Environmental System Science Principal Investigator (PI) Meeting, Potomac, MD. May 1-2, 2018

68. "Bioreduction of iron in pyroaurite by *Shewanella putrefaciens* CN32", Ramos M., **Boyanov M.**, Kemner K., O'Loughlin E., Session on "General Geochemistry", Spring ACS Meeting, New Orleans, March 21, 2018
69. "Reduction of Hg(II) by structural Fe(II) in clay minerals", Thalhammer K., **Boyanov M.**, Kemner K., O'Loughlin E., Session on "Contaminated Site Remediation through Microbial, Geological & Chemical Processes", Spring ACS Meeting, New Orleans, March 21, 2018
70. "U(VI) and Fe-containing oxyhydroxide and clay minerals: Redox reactivity and products", **Boyanov M**, Latta D, Mishra B, Scherer M, Yan S, O'Loughlin E, Kemner K,Session on "Mineral-Water Interface Geochemistry & Modeling at the Laboratory- & Field-Scales", Spring ACS Meeting, New Orleans, March 19, 2018
71. "Interaction of U(VI) with SYn-1, SWy-2, and NAu-1 clays under reducing conditions: redox reactivity and products", **Boyanov M**, Latta D, Mishra B, Scherer M, O'Loughlin E, Kemner K, SES7 conference, Brookhaven National Laboratory, Upton, NY, October 30, 2017.
72. "Stabilization of a mixed-valence U(V)-U(VI) phase in systems with reduced SWy-2 and NAu-1 clays", **Boyanov M**, Latta D, Mishra B, Scherer M, O'Loughlin E, Kemner K, session on "Redox dynamics and their influence on the fate, reactivity and transport of radio-contaminants and other trace elements", Goldschmidt2017, Paris, France, August 15, 2017.
73. "Interactions of vanadium(V) with iron(II)/(III)-bearing minerals", O'Loughlin E, **Boyanov M**, Kemner K, session on "Redox dynamics and their influence on the fate, reactivity and transport of radio-contaminants and other trace elements", Goldschmidt2017, Paris, France, August 15, 2017.
74. "Abiotic and Biotic Controls on Iron Reduction and Biomineralization over Broad Geochemical Conditions by Orenia metallireducens, strain Z6". Dong, Y., Sanford, R. A., **Boyanov, M. I.**, Kemner, K. M., Flynn, T. M., O'Loughlin, E. J., George, S., Fouke, K. E., Fouke, B. W. Gordon Research Conferences, Applied & Environmental Microbiology, South Hadley, MA, July 16-21, 2017
75. "The Argonne National Laboratory Subsurface Biogeochemical Research Program SFA: Fe and S biogeochemistry in redox dynamic environments" Kemner KM, Antonopoulos DA, Flynn TM, Mishra B, **Boyanov MI**, Latta DE, Scherer MM, Liu C, O'Loughlin EJ, Environmental System Science Principal Investigator (PI) Meeting, Potomac, MD. April 25–26, 2017
76. "Using X-ray spectroscopy to define the interplay between Fe, S, and U dynamics in batch reactors and flow-through columns," **Boyanov MI**, Latta DE, Scherer MM, Liu Y, Liu C, Mishra B, Yan S, O'Loughlin EJ, Kemner KM. Environmental System Science Principal Investigator (PI) Meeting, Potomac, MD. April 25-26, 2017.
77. "Biogeochemical impacts of the microbially-mediated cycling of iron and sulfur," Flynn TM, O'Loughlin EJ, **Boyanov MI**, Kirk MF, Paper JM, Dong Y, Sanford RA, Fouke BW, Kemner KM. Environmental System Science Principal Investigator (PI) Meeting, Potomac, MD. April 25-26, 2017.
78. "The speciation of uranium under reducing conditions: new insights and perspectives". **Boyanov M. I.**, Latta D. E., Mishra B., Scherer M., O'Loughlin E. J., Kemner K. M. Session on Actinides in Life Sciences, Medicine and the Environment, 8th Workshop on Speciation, Techniques, and Facilities for Radioactive Materials at Synchrotron Light Sources. Queen's College, University of Oxford, April 11, 2017
79. "Biogeochemistry of antimony(V) in microcosms under sulfidogenic conditions". Johnson C.R., Antonopolous D.A., **Boyanov M.**, Flynn T., Koval J.C., Kemner K.M., O'Loughlin E.J. Session on Advances in Treatment Processes for Metals & Metalloids, ACS Spring Meeting, San Francisco, April 5, 2017.
80. "Fe(II)-Fe(III) electron transfer in a low Fe clay mineral and its implications for U(VI) reduction", Latta D., Neumann A., Premaratne W., **Boyanov M.**, O'Loughlin E.J., Kemner K.M., Scherer M. Session on Redox-Driven Environmental Geochemical Reactions for Metals, Major Elements & Organic Pollutants, ACS Spring Meeting, San Francisco, April 4, 2017.

81. “Interactions of vanadium(V) with Fe(II)-bearing minerals”. O’Loughlin E.J., **Boyanov M.**, Kemner K.M., Session on Redox-Driven Environmental Geochemical Reactions for Metals, Major Elements & Organic Pollutants, ACS Spring Meeting, San Francisco, April 5, 2017.
82. “Mineralogical, Physical and Geochemical Factors that Drive Microbial Reduction of Iron Oxides and Diagenesis under Broad Environmental Conditions”, Y. Dong, R. Sanford, **M. Boyanov**, K. Kemner, T. Flynn, E. O'Loughlin, S. George, K. Fouke, B. Fouke. Session on Microbial Geochemistry and Geomicrobiology: From DNA to Rock, AGU Fall Meeting, San Francisco, December 12, 2016.
83. “The Effect of Iron Oxides and Montmorillonite Clays on the Transformations of Uranium Under Reducing Conditions”, **M.I.Boyanov**, D. E. Latta, B.Mishra, M. Scherer, E. J. O’Loughlin, K.M.Kemner. Session on Environmental XAS at the 3rd International Workshop on Advanced Techniques in Actinide Spectroscopy, PNNL, Richland, WA, November 7-10, 2016.
84. “XAFS Investigations of U^{VI} Reduction by Biotic and Abiotic Green Rusts”. S. Yan, **M.I.Boyanov**, B.Mishra, E. J. O’Loughlin, K.M.Kemner. Session on Environmental XAS at the 3rd International Workshop on Advanced Techniques in Actinide Spectroscopy, PNNL, Richland, WA, November 7-10, 2016.
85. “U(VI) Reduction by Biotic and Abiotic Green Rusts”. S.Yan, **M.I.Boyanov**, B.Mishra, K.M.Kemner, E.J.O'Loughlin. Session on Microbiological and geochemical controls on trace metal speciation, transformation, and transport, Goldschmidt2016, Yokohama, Japan, June 28, 2016.
86. “The effect of surfaces and ligands on the reduction and reoxidation reactions of U studied in mixed-batch reactors and flow-through columns”, **M.Boyanov**, D.Latta, M.Scherer, Y.Liu, C.Liu, B.Mishra, E.O’Loughlin, K.Kemner. Environmental System Science Principal Investigator (PI) Meeting, Potomac, MD, April 27-28, 2016
87. "The Argonne National Laboratory Subsurface Biogeochemical Research Program SFA: Fe and S Biogeochemistry in Redox Dynamic Environments", K.M.Kemner, D.A.Antonopoulos, T.M.Flynn, B.Mishra, **M.I.Boyanov**, D.E.Latta, M.M.Scherer, C.Liu, J.K.Fredrickson, K.M.Rosso, J.M.Zachara, E.J.O’Loughlin. Environmental System Science Principal Investigator (PI) Meeting, Potomac, MD, April 27-28, 2016
88. "Abiotic redox dynamics between Hg and Mn", B.Mishra, E.J.O’Loughlin, **M.I.Boyanov**, K.M.Kemner. Environmental System Science Principal Investigator (PI) Meeting, Potomac, MD, April 27-28, 2016
89. “Effect of Mineralogy, pH, Temperature, Salinity and Anions on the Ability of Bacteria to Reduce Ferric Iron Oxides and Drive Diagenesis”, Y. Dong, R. Sanford, **M. Boyanov**, K. Kemner, T. Flynn, E. O'Loughlin, S. George, K. Fouke, B. Fouke. GSA North-Central 50th Annual Meeting, Champaign, IL, April 18, 2016
90. “Reduction of Sb(V) by coupled biotic and abiotic processes in sulfidogenic microcosms.” C.R. Johnson, D.A. Antonopoulos, **M. Boyanov**, T. Flynn, J.C. Koval, K.M. Kemner, E.J. O’Loughlin. ACS Meeting San Diego, March 14, 2016
91. “Influence of mineral surfaces on the speciation of uranium under reducing conditions”. **M. Boyanov**, D. Latta, B. Mishra, M. Scherer, E.J. O’Loughlin, K.M. Kemner. ACS Meeting San Diego, March 16, 2016
92. “Biogeochemical controls on the molecular scale interactions of metals with microbes” B . Mishra, **M. I. Boyanov**, E. J. O'Loughlin, K. M. Kemner, 251st American Chemical Society Meeting, San Diego, March 13-17, 2016
93. “Biogeochemistry of Antimony(V) in Microcosms under Sulfidogenic Conditions”, E. J. O'Loughlin, C. R. Johnson, D. A. Antonopoulos, **M. I. Boyanov**, T. M. Flynn, J. Koval, K. M. Kemner, American Geophysical Union Fall Meeting, San Francisco, USA, December 15, 2015
94. “Investigating redox processes under diffusive and advective flow conditions using a coupled omics and synchrotron approach”, KM Kemner, **MI Boyanov**, SD Kelly, K Skinner, B Mishra, S Brooks, D Watson, W-M Wu, American Geophysical Union Fall Meeting, San Francisco, USA, December 15, 2015
95. “Effects of mineral speciation, pH, temperature, salinity and anions on the bioreduction of ferric iron oxides and the formation of secondary mineralization products”, Y. Dong, R. Sanford, **M. Boyanov**,

K. Kemner, T. Flynn, E. O'Loughlin, S. George, K. Fouke, B. Fouke. Fourth Annual Midwest Geobiology Symposium, Indiana University, Bloomington, IN, October 10, 2015.

96. "Structure and Function of Microbial Communities in the Subsurface", T. Flynn, D.A. Antonopoulos, K. Hanfley, **M. I. Boyanov**, F. Mayer, B. Mishra, W. Trimble, K. Skinner, S. Kelly, E.J.O'Loughlin, K.M. Kemner. Fourth Annual Midwest Geobiology Symposium, Indiana University, Bloomington, IN, October 10, 2015.
97. "Biogeochemistry of Antimony(V) in Microcosms under Sulfidogenic Conditons", C. R. Johnson, D. A. Antonopoulos, **M. I. Boyanov**, T. M. Flynn, J. Koval, K. M. Kemner, E. J. O'Loughlin. Fourth Annual Midwest Geobiology Symposium, Indiana University, Bloomington, IN, October 10, 2015.
98. "Biological and abiotic factors affecting the solid-phase speciation of U(IV) following reduction of aqueous U(VI)", **M. Boyanov**, D. Latta, B. Mishra, E. O'Loughlin, K. Kemner, session on " Actinides & Radionuclides", XAFS16 Conference, Karlsruhe, Germany, August 24, 2015.
99. "Biogeochemical Controls on the Molecular Scale Interactions of Mercury with Microbes", Mishra B, O'Loughlin E, **Boyanov M** & Kemner K, Goldschmidt2015, Prague, Czech Republic, August 21, 2015.
100. "Reduction of Sb(V) by coupled biotic-abiotic processes under sulfidogenic conditions", **M. I. Boyanov**, C. R. Johnson, D. A. Antonopoulos, T. M. Flynn, J. Koval, K. M. Kemner, E. J. O'Loughlin, Goldschmidt2015, Prague, Czech Republic, August 19, 2015.
101. "Biogeochemistry of Antimony(V) in Microcosms under Sulfidogenic Conditions", C. R. Johnson, D. A. Antonopoulos, **M. I. Boyanov,** T. M. Flynn, K. M. Kemner, J. Koval, E. J. O'Loughlin. 115th General Meeting of the American Society for Microbiology, New Orleans, LA. May 30-June 2, 2015.
102. "Update on the factors controlling the speciation of Hg and U in laboratory reactors, flow-through columns, and natural sediments", **M. Boyanov,** B. Mishra, D. Latta, M. Scherer, Y.Liu, C. Liu, E. O'Loughlin, K. Kemner. Joint SBR/TES PI Meeting 2015, Potomac, MD, April 28-29, 2015.
103. "Microbial Community Structure in Redox Dynamic Environments", T.M. Flynn, D. Antonopoulos, K. Handley, **M I. Boyanov**, D. Bartels, F. Mayer, B. Mishra, W. Trimble, K. Williams, K. Skinner,S. Kelly, W.-M. Wu,C. Criddle,F. Yan, T. Marsh, E. O'Loughlin, K. Kemner. Joint SBR/TES PI Meeting 2015, Potomac, MD, April 28-29, 2015.
104. "The Argonne National Laboratory Subsurface Biogeochemical Research Program SFA: Fe and S Biogeochemistry in Redox Dynamic Environments". K. M. Kemner, E. J. O'Loughlin, D. A. Antonopoulos, T. M. Flynn, B. Mishra, **M. I. Boyanov**, D. E. Latta, M. M. Scherer, C. Liu, J. K. Fredrickson, K. M. Rosso, J. M. Zachara. Joint SBR/TES PI Meeting 2015, Potomac, MD, April 28-29, 2015.
105. "Electron Transfer and Atom Exchange Between Fe(II) and Structural Fe(III) in Clays", D. E. Latta, M. Scherer, K.M. Rosso, B.L. Beard, C.M. Johnson, **M.I. Boyanov**, K. M. Kemner, E.J. O'Loughlin. Joint SBR/TES PI Meeting 2015, Potomac, MD, April 28-29, 2015.
106. "Insights into Fe and S Biogeochemistry in Redox Dynamic Environments". E. J. O'Loughlin, T. M. Flynn, **M.I. Boyanov**, T.J. DiChristina, M.J.Kwon, M.L. McCormick, B. Mishra, M. M. Scherer, K. M. Kemner. Joint SBR/TES PI Meeting 2015, Potomac, MD, April 28-29, 2015.
107. "Behavior of antimony(V) under Fe(III)- and sulfate-reducing conditions ", C. Johnson, D. Antonopolous, **M. Boyanov**, T. Flynn, K. Kemner, J. Koval, E. O'Loughlin. Session on "Coupled Cycling of Biogeochemical Critical Elements and Contaminants", ACS Meeting, Denver, CO. March 22-26, 2015.
108. "Novel synchrotron-based hard x-ray approaches to understanding controls on metal ion fate in subsurface and terrestrial environments", K. Kemner, **M. Boyanov**, B. Mishra, E. O'Loughlin, S. O'Brien, D. Scholot-Douglas, B. Lai, M. Balasubramanian, R. Gordon, S. Kelly, V. Bailey. Symposium in Honor of Dr. Donald Sparks, 2015 Geochemistry Medal Recipient, ACS Meeting, Denver, CO. March 22-26, 2015.
109. "A novel nanoparticle approach for imaging nutrient uptake by soil bacteria", S.O'Brien, M.Whiteside, D.Sholto-Douglas, D.Antonopoulos, **M.Boyanov**, D.Durall, M.Jones, B.Lai, E.O'Loughlin,K.Kemner, American Geophysical Union Fall Meeting, San Francisco, December 15-19, 2014

110. "Behavior of antimony(V) under sulfate-reducing conditions ", C. Johnson, D. Antonopolous, **M. Boyanov**, T. Flynn, K. Kemner, J. Koval, E. O'Loughlin. Midwest Geobiology symposium, University of Chicago, IL, USA, September 27-28, 2014
111. "Acid extraction overestimates total Fe(II) in the presence of Fe(III) oxide and Fe(II) sulfide minerals", M-J. Kwon, J-S. Yang, M-J. Shim, **M.Boyanov**, K.Kemner, E.O'Loughlin. Midwest Geobiology symposium, University of Chicago, IL, USA, September 27-28, 2014
112. "A novel nanoparticle approach for imaging nutrient uptake by soil bacteria", S.O'Brien, M.Whiteside, D.Sholto-Douglas, D.Antonopoulos, **M.Boyanov**, D.Durall, M.Jones, B.Lai, E.O'Loughlin,K.Kemner, Midwest Geobiology symposium, University of Chicago, IL, USA, September 27-28, 2014
113. "Uptake, reduction, and reoxidation mechanisms of uranium in biogeochemical systems studied by x-ray absorption spectroscopy", **M.Boyanov**, D.Latta, B.Mishra, R.Cook, E.O'Loughlin, K.Kemner, Synchrotron Environmental Science VI. Argonne National Laboratory September 11-12, 2014.
114. "Reduction of antimony(V) by iron(II) minerals", C. Johnson, **M. Boyanov**, K. Kemner,E. O'Loughlin, Synchrotron Environmental Science VI, Argonne National Laboratory, September 11-12, 2014.
115. "Acid extraction overestimates the total Fe(II) in the presence of Fe(III) oxide and Fe(II) sulfide minerals", M-J. Kwon, J-S. Yang, M-J. Shim, **M.Boyanov**, K.Kemner, E.O'Loughlin, Synchrotron Environmental Science VI, Argonne National Laboratory, September 11-12, 2014.
116. "A novel nanoparticle approach for imaging soil bacteria", S.O'Brien ,M.Whiteside, D.Sholto-Douglas, D.Antonopoulos, **M.Boyanov**, D.Durall, M.Jones, B.Lai, E.O'Loughlin, K.Kemner, Synchrotron Environmental Science VI. Argonne National Laboratory September 11–12, 2014.
117. "Development of a soft x-ray scanning transmission x-ray microscope for imaging carbon chemistry at 20BM at the APS", K. Kemner, B. Mishra, E. O'Loughlin, **M. Boyanov**, C.Jacobsen, R. Reininger, Synchrotron Environmental Science VI, Argonne National Laboratory, September 11–12, 2014.
118. "Synchrotron-based characterization at the APS to determine physical and chemical characteristics of carbon in the subsurface and root zones to improve Earth system modeling of the biogeochemical cycling of carbon", K.Kemner, B.Mishra, E.O'Loughlin, **M.Boyanov**, S.O'Brien, V.Bailey, A. Konopka, Complex Soil Systems Conference, Berkeley CA, September 3–5 2014
119. "A novel nanoparticle approach for imaging soil bacteria", S.O'Brien, M.Whiteside, D.Sholto-Douglas, D.Antonopoulos, **M.Boyanov**, D.Durall, M.Jones, B.Lai, E.O'Loughlin,K.Kemner, Complex Soil Systems Conference, Berkeley CA September, 3–5 2014
120. "Calcium and phosphate decrease the oxidation rates of UO2 and UIV-phosphate", D. E. Latta, K. M. Kemner, **M. I. Boyanov** , ACS Fall 2014 Meeting, session "Uptake and Incorporation of Radionuclides in Minerals", San Francisco, CA, August 13, 2014
121. "Solid-state electron transfer between environmentally important semiconducting oxides". D. E. Latta, K. M. Kemner, M. M. Scherer, **M. I. Boyanov**, ACS Fall 2014 Meeting, San Francisco, CA, August 11, 2014
122. "Imaging nutrient uptake in bacterial biofilms using quantum dots", O'Brien SL, Whiteside MD, Sholto-Douglas D, Antonopoulos DA, **Boyanov MI**, Durall DM, Jones MD, Lai B, O'Loughlin EJ, Kemner KM., 99th Ecological Society of America Annual Meeting. Sacramento CA, August 10–15 2014
123. "Uranium(IV) surface complexes form by U(VI) reduction at the mineral-water interface", D. Latta, B. Mishra, R. Cook, K. Kemner, **M. Boyanov**, Session on Molecular-Scale Interactions of Organic and Inorganic Pollutants With Mineral, Organic, and Biological Surfaces, Goldschmidt 2014, Sacramento, CA, June 9, 2014
124. "Influence of As(V) on Fe(II)-catalyzed Fe Oxide Recrystallization", B. Huhmann, A. Neumann, **M. Boyanov**, K. Kemner, M. Scherer, Session on "Molecular-Scale Interactions of Organic and Inorganic Pollutants With Mineral, Organic, and Biological Surfaces", Goldschmidt 2014, Sacramento, CA, June 9, 2014

125. "Microbial response to spatial and temporal dynamics of uranium, iron, sulfur in ethanol-amended sediments", T. Flynn, **M. Boyanov**, K. Skinner, S. Kelly, W-M. Wu, C. Criddle, F. Yan, T. Marsh, E. O'Loughlin, K. Kemner, Session on "From genes to geochemistry: integrating environmental and biological datasets to unearth novel microbial metabolisms and chemical processes", Goldschmidt 2014, Sacramento, CA, June 11, 2014
126. "Reduction of Hg^{II} by Mn^{II}", B. Mishra, E. O'Loughlin, **M. Boyanov**, K. Kemner, Session on "Biogeochemical processes influencing mobilization, transformations, and bioavailability of mercury", Goldschmidt 2014, Sacramento, CA, June 9, 2014
127. "Speciation of reduced U(IV) in contaminated sediments and laboratory reactors", **M. Boyanov**, D. Latta, B. Mishra, E. O'Loughlin, K. Kemner, Actinide XAS 2014, Schloss Böttstein, Switzerland, May 21, 2014
128. "Redox Dynamics of Hg and U: Mn(II) as a Reductant of Hg(II) and the Influence of Mineral Surface Sites on the Speciation of U(IV)", **M I. Boyanov**, B. Mishra, D. Latta, E. O'Loughlin, K. Kemner, TES/SBR Joint Investigators Meeting, Bolger Center, Potomac, MD, May 6-7, 2014.
129. "Interconnected Cycling of Fe, S, and C in the Terrestrial Subsurface: New Paths and Opportunities for Coupling Biotic and Abiotic Processes", D. Antonopoulos, E. O'Loughlin, T. Flynn, K. Handley, M-J. Kwon. D. Bartels, **M I. Boyanov**, F. Mayer, B. Mishra, W. Trimble, P.Long, K. Williams, T. DiChristina, K. Kemner, TES/SBR Joint Investigators Meeting, Bolger Center, Potomac, MD, May 6-7, 2014.
130. "Synchrotron-based characterization of the physical and chemical characteristics of carbon in the subsurface and root zones to improve Earth system modeling of biogeochemical cycling of carbon", K. Kemner, B. Mishra, E. O'Loughlin, **M I. Boyanov**, S. O'Brien, V. Bailey, A. Konopka, J. Jastrow, C. Liang, M. Balasubramaniam, R. Gordon, B. Cooper, J. Chanton, M. Tfaily, TES/SBR Joint Investigators Meeting, Bolger Center, Potomac, MD, May 6-7, 2014.
131. "The role of As(V) for the slow oxidation of Fe(II) by DO and characterization of the aqueous phase precipitates", W. Jung, S.-H. Lee, O.-H. Kwon, **M I. Boyanov**, B.-H. Jeon, International Conference on Biological, Chemical and Environmental Sciences (SCES-2014), KEE Resort & Spa Hotel, Patong Beach, Kathu, Phuket, Thailand, January 21-22, 2014.
132. "Reduction of Aqueous U(VI) by Fe(II): Effect of Ti(IV) on the Speciation of U(IV)", D. E. Latta, C. I. Pearce, K. M. Rosso, E.J. O'Loughlin, K. M. Kemner, **M. I. Boyanov,** session 10a: Geochemical Processes at Mineral-Water Interfaces: Insight from Macroscopic, Spectroscopic, and Computational Methods, Goldschmidt 2013, Florence, Italy, August 27, 2013
133. "Geochemical Characteristics and Microbial Community Composition of Toxic Metal-Rich Sediments Contaminated from Mine Tailings", Kwon MJ, Ham B, Hwang Y, Choi J, **M.I. Boyanov**, Kemner K, O'Loughlin E & Yang J-S**,** session 19q: Biosphere: The role of living matter in element accumulation in natural and contaminated systems, Goldschmidt 2013, Florence, Italy, August 27, 2013
134. "Chemical and physical controls on reduced uranium (U4+) speciation", D.E. Latta, K.M. Kemner, **M. I. Boyanov,** 2013 AEESP 50th Anniversary Conference, Colorado School of Mines, Golden, CO, July 14 - 16, 2013.
135. "Update on the factors controlling U(IV) speciation during (bio)reduction of aqueous and solid-phase U(VI): effects of phosphate and Ti(IV)", **M. Boyanov**, E. O'Loughlin, D. Latta, B. Mishra, C. Pearce, K. Rosso, M. Scherer, W.-M. Wu, C. Criddle, F.Yang, T. Marsh, J. Fein, B. Bunker, K. Fletcher, F. Löffler, R. Sanford, D. Watson, S. Brooks, K. Kemner; TES/SBR Joint Investigators Meeting, Bolger Center, Potomac, MD, May 13-15, 2013
136. "Investigations of the physical and chemical characteristics of carbon in the subsurface and root zones to improve Earth system modeling of the biogeochemical cycling of carbon", K. M. Kemner, B. M. Mishra, E. J. O'Loughlin, **M. I. Boyanov**, V. Bailey, A. Konopka, J. Jastrow, C. Liang, M. Balasubramanian, R. Gordon; TES/SBR Joint Investigators Meeting, Bolger Center, Potomac, MD, May 13-15, 2013
137. "Coupled processes in the biogeochemical dynamics of Fe, S, and C under sulfate- and iron-reducing conditions", E. O'Loughlin, M. J. Kwon, T. Flynn, D. Antonopoulos, **M. Boyanov**, J. Brulc, E. Johnston, K. Skinner, P. Long, K. Williams, T. DiChristina, K. Kemner; TES/SBR Joint Investigators Meeting, Bolger Center, Potomac, MD, May 13-15, 2013

138. "Hydrobiogeochemical Interactions along "Flow Tubes" Controls Watershed Scale Contaminant Flow and Transformation at the Oak Ridge IFRC", D. Watson, C. Schadt, J. Kostka, P. Jasrotia, S. Green, K. Kemner, **M. Boyanov**, G. Baker, D. Phillips, S. Brooks; TES/SBR Joint Investigators Meeting, Bolger Center, Potomac, MD, May 13-15, 2013
139. "Electron Transfer and Atom Exchange Between Fe(II) and Structural Fe(III) in Clays", M. M. Scherer, A. Neumann, K. M. Rosso, V. Alexandrov, C. M. Johnson, B. L. Beard, **M. I. Boyanov**, K. M. Kemner, E. J. O'Loughlin; TES/SBR Joint Investigators Meeting, Bolger Center, Potomac, MD, May 13-15, 2013
140. "Exploring the Responses of Metal-Reducing Bacteria to Fluctuating Redox Conditions", G. Walshe, J. Merryfield, K. Ritalahti, S. Nissen, K. Chourey, R. Hettich, K. Pennell, A. Basu, R. Sanford, C. Lundstrom, T. Johnson, K. Kemner, E. O'Loughlin, **M. Boyanov**, F. Löffler; TES/SBR Joint Investigators Meeting, Bolger Center, Potomac, MD, May 13-15, 2013
141. "Slow oxidation kinetic of Fe(II) with As(V) and characterization of Fe and As(V) precipitates in the aqueous solution", W. Jung, **M. Boyanov**, B.-H. Jeon, Korea Society of Soil and Groundwater Environment, April 12, 2013
142. "Reduction of U(VI) at biological and mineral surfaces: Mechanisms and factors controlling the speciation of U(IV)", **M. Boyanov**, D. Latta, B. Mishra, E.O'Loughlin, K. Kemner, ACS Meeting in New Orleans, LA, session "Chemical Pictures of Environmental Interfaces: Advances in Molecular-Level Understanding and Quantitative Analysis of Species" April 8, 2013
143. "Impurities at the mineral-water interface: Effects on Fe and U redox cycles", D. Latta, J. Bachman, C. Pearce, K. Rosso, C. Gorski, E.O'Loughlin, K. Kemner, M. Scherer, **M. Boyanov**, ACS Meeting in New Orleans, LA, session "Redox Processes at Mineral-Water Interfaces and their Impacts on Metal Biogeochemical Cycling and Contaminant" April 8, 2013
144. "Reduction of Hg(II) by Fe(II) sorbed to minerals", B. Mishra, **M. Boyanov**, E.O'Loughlin, K. Kemner, ACS Meeting in New Orleans, LA, session "Redox Processes at Mineral-Water Interfaces and their Impacts on Metal Biogeochemical Cycling and Contaminant Remediation" April 8, 2013
145. "Effects of dissimilatory sulfate reduction on Fe(III) oxide reduction and microbial community development", M.-J. Kwon, **M. Boyanov**, D. Antonopolous, J. Brulc, E. Johnston, K. Skinner, K. Kemner, E.O'Loughlin, ACS Meeting in New Orleans, LA, session "Geochemistry of Sulfur" April 8, 2013
146. "Effects of electron donor on the biogeochemical dynamics of Fe, S, and C under sulfate- and iron-reducing conditions", M.-J. Kwon, **M. Boyanov**, D. Antonopolous, J. Brulc, E. Johnston, K. Kemner, E.O'Loughlin, ACS Meeting in New Orleans, LA, session "Carbon Dynamics and the Biogeochemical Cycling of Major and Minor Elements" April 10, 2013
147. "Abiotic redox transformations of Hg(II)", B. Mishra, E.O'Loughlin, **M. Boyanov**, K. Kemner, ACS Meeting in Philadelphia, PA, session "Spectroscopic Identification of Interfacial Chemical Species in Natural and Engineered Environments" August 22, 2012
148. "Using EXAFS to detect redox transformations of U(VI) and Fe(II) at a carboxyl surface", **M. Boyanov**, E.O'Loughlin, D. Latta, B. Mishra, K. Kemner, , ACS Meeting in Philadelphia, PA, session "Spectroscopic Identification of Interfacial Chemical Species in Natural and Engineered Environments" August 22, 2012
149. "XAFS investigations of uranium(VI) interactions with iron(II)-bearing minerals" , E.O'Loughlin, **M. Boyanov**, M-J. Kwon, S. Kelly, C. Gorski, D. Latta, M. Scherer, K. Kemner , ACS Meeting in Philadelphia, PA, session "Spectroscopic Identification of Interfacial Chemical Species in Natural and Engineered Environments" August 22, 2012
150. "Mechanistic study of carbon-supported Pd/Re catalysts for perchlorate reduction: Spectroscopic characterization of Re speciation", J-K. Choe, **M. Boyanov**, K. Kemner, C. Werth, T. Strathmann, ACS Meeting in Philadelphia, PA, session "Spectroscopic Identification of Interfacial Chemical Species in Natural and Engineered Environments" August 22, 2012
151. "Dissimilatory iron reduction and the redox cycling of green rust", E.O'Loughlin, **M. Boyanov**, C. Gorski, M. McCormick, M. Scherer, K. Kemner ACS Meeting in Philadelphia, PA, session "Environmental Chemistry of Fe-Oxides and Fe-Hydroxides" August 21, 2012
152. "Transformations of aqueous U(VI) during the redox cycling of Fe phases", **M. Boyanov**, D. Latta, M. Scherer, E.O'Loughlin, K. Kemner, Goldschmidt 2012, session 8c. Structural incorporation of

heavy metals/radionuclides into mineral phases in aqueous environment, Montreal, Canada, June 29, 2012

153. "Dissimilatory iron reduction and the redox cycling of green rust", E.O'Loughlin, **M. Boyanov**, C. Gorski, M. McCormick, M. Scherer, K. Kemner, Goldschmidt 2012, session 16d. Biogeochemistry under redox-dynamic conditions: Processes, speciation and fluxes, Montreal, Canada, June 29, 2012
154. "Ligand effects on Hg(II) reduction by magnetite", B. Mishra, T.Pasakarnis, **M. Boyanov**, E.O'Loughlin, M. Scherer, K. Kemner, Goldschmidt 2012, session 14d. Geochemical influences on Hg bioavailability and biogeochemical transformations, Montreal, Canada, June 27, 2012
155. "Dissolution of uranyl precipitates in contaminated vadose zone sediments", A. Singh, J. Zachara, J. McKinley, C. Liu, **M. Boyanov**, K. Kemner, D. Moore, Goldschmidt 2012, session 8k: Trace element interactions with soils and sediments: implications for transport, Montreal, Canada, June 26, 2012
156. "Mechanistic Study of Carbon-Supported Pd/Re Catalysts for Perchlorate Reduction: Spectroscopic Characterization of Re Speciation", J.-K. Choe, K.Kemner, **M.Boyanov**, C.Werth, T. Strathmann, Gordon Research Conference, Environmental Sciences: Water, Holderness, NH , June 24-29, 2012
157. "Understanding Uranium Transformations in Reduced Sediments: An Integrated Bottom-Up and Top-Down X-Ray Spectroscopy Approach" , **M. Boyanov**, E.O'Loughlin, D.Latta, B.Mishra, K.Skinner, M.Scherer, W.-M.Wu, C.Criddle, F.Yang, T.Marsh, R.Sanford, F.Löffler, M. Mueller, T.Mehlhorn, K.Lowe, D.Watson, S.Brooks, K.Kemner,Subsurface Biogeochemistry Research PI meeting, Washington D.C., April 30- May 2, 2012
158. "The Argonne Subsurface Biogeochemical Research Program Scientific Focus Area" K.Kemner , E.O'Loughlin, M.**Boyanov**, D.Antonopoulos, D.Latta, T.Flynn, S.Brooks, E.Carpenter, C.Criddle, J.Fredrickson, F.Löffler, T.Marsh, M.McCormick, B.Mishra, R.Sanford, C.Segre, M.Scherer, W.Wu, J.Zachara, C.Giometti, Subsurface Biogeochemistry Research PI meeting, Washington D.C., April 30-May 2, 2012
159. "Ligand and Surface Effects on the Reduction of HgII by FeII" B.Mishra, T.Pasakarnis, M.**Boyanov**, E.O'Loughlin, M.Scherer, K.Kemner,Subsurface Biogeochemistry Research PI meeting, Washington D.C., April 30- May 2, 2012
160. "Effects of FeIII Oxide Mineralogy and Electron Donor on the Biogeochemical Dynamics of Fe, S, and C under Sulfate- and Iron-Reducing Conditions", E.O'Loughlin, M.J.Kwon, D.Antonopoulos, M.**Boyanov**, J.Brulc, T.Flynn, E.Johnston, K.Skinner, P.Long, K.Williams, M.McCormick, K.Kemner,Subsurface Biogeochemistry Research PI meeting, Washington D.C., April 30- May 2, 2012
161. "Relating Differences in Mineral Reaction Rates to Microenvironment Creation and Heterogeneous Pore-Scale Phase Distribution at the Hanford Site", K.Rosso, A.Felmy, C.Pearce, J.Liu, O.Qafoku, S.Heald, D.Latta, M.**Boyanov**, K.Kemner, E.Arenholz, E.Buck, L.Shi, J.McKinley, D.Moore, T.Resch, T.Schaef, M.Bowden, Subsurface Biogeochemistry Research PI meeting, Washington D.C., April 30-May 2, 2012
162. "Temporal Monitoring of Microbial Community Dynamics Under Iron- and Sulfate-Reducing Conditions via "Now-Generation" DNA Sequencing-Enabled Molecular Environmental Microbiology" , D.Antonopoulos, M.**Boyanov**, J.Brulc, E.Johnston, M.J.Kwon, P.Long, T.Marsh, M.McCormick, F.Meyer, K.Skinner, K.Williams, D.Sholto-Douglas, E.O'Loughlin, K.Kemner, Subsurface Biogeochemistry Research PI meeting, Washington D.C., April 30- May 2, 2012
163. "Multiscale Investigations on the Rates and Mechanisms of Targeted Immobilization and Natural Attenuation of Radionuclides and Co-Contaminants in the Subsurface", S.Brooks, D.Watson—ORNL, G.Baker, M.**Boyanov**, C.Brandt, C.Criddle, B.Gu, S.Hubbard, K.Kemner,J.Kostka, J.Parker, C.Schadt, Wei-Min Wu,T.Zimmerman, F.Zhang, J.Zhou, Subsurface Biogeochemistry Research PI meeting, Washington D.C., April 30- May 2, 2012
164. "Electron Transfer and Atom Exchange between Aqueous Fe(II) and Structural Fe(III) in Clays: Role in U and Hg(II) Transformations", A. Neumann, M.M. Scherer,M. Barger, C. Johnson, B. Beard, L. Wu, K.M. Rosso, V. Alexandrov, K. Kemner, M. **Boyanov**, E. O'Loughlin, Subsurface Biogeochemistry Research PI meeting, Washington D.C., April 30- May 2, 2012
165. "Monitoring Microbial Uranium Reduction at the Oxic-Anoxic Interface", R.Sanford, A.Basu, C. Lundstrom, T. Johnson, J. Merryfield, G. Walshe, K. Kemner, M. **Boyanov**, K. Pennell, F. Löffler, Subsurface Biogeochemistry Research PI meeting, Washington D.C., April 30- May 2, 2012

166. "Microscale Metabolic, Redox and Abiotic Reactions in Hanford 300 Area Subsurface Sediments", H.Beyenal, J.Fredrickson, J.McLean, P.Majors, K.Kemner, B.Mishra, M.**Boyanov**, M.Marshall, L.Shi, D.Kennedy, R.Brown, Y.Xion, M.Romine, M.Lipton, N.Isern, Subsurface Biogeochemistry Research PI meeting, Washington D.C., April 30- May 2, 2012
167. "Effects of electron shuttles on the reduction of U(VI) under Fe(III)- and sulfate-reducing conditions", EJ O'Loughlin, **MI Boyanov**, M-J Kwon, PE Long, KH Williams, KM Kemner, 2012 Spring ACS Meeting, "Redox Processes of Bioactive Molecules in Aquatic Environments" session, San Diego, March 28, 2012
168. "Ferrous iron minerals in soil reduce uranium(VI), DE Latta, **MI Boyanov**, EJ O'Loughlin, KM Kemner, MM Scherer, 2012 Spring ACS Meeting, "Sorption and Transformation of Contaminants in Natural Soil Environment" session, San Diego, March 25, 2012
169. "Bioreduction of U(VI): factors controlling the speciation of U(IV)", **M. Boyanov**, K. Fletcher, E. O'Loughlin, M-J. Kwon, F. Löffler, K. Kemner, "Uranium biogeochemistry: transformations and applications" workshop, Ascona, Switzerland, March 12, 2012
170. "Reduction of U(VI) by Fe(II)-containing phases", E. O'Loughlin, **M. Boyanov**, D. Latta, C. Gorski, M. Scherer, K. Kemner, "Uranium biogeochemistry: transformations and applications" workshop, Ascona, Switzerland, March 12, 2012
171. "Characterization of U(VI) reduction in contaminated sediments with slow-degrading electron donor source", W.-M. Wu, D. B. Watson,G.-X. Zhang,T. Mehlhorn, K. Lowe, J. Earles, J. Phillips, S. D. Kelly, **M. Boyanov**, K. M. Kemner, C. Schadt, C. S. Criddle, P. M. Jardine, S. C. Brooks. 2011 American Geophysical Union meeting, San Francisco, December 6, 2011.
172. "Injection of Emulsified Vegetable Oil for Long-Term Bioreduction of Uranium", S. C. Brooks, D. B. Watson, C. Schadt, P. M. Jardine, T. M. Gihring, G.-X. Zhang, T. Mehlhorn, K. Lowe, J. Phillips, J. Earles, W.-M. Wu, C. S. Criddle, , K. M. Kemner, **M. Boyanov**. 2011 American Geophysical Union meeting, San Francisco, December 6, 2011.
173. "Reductive and non-reductive U(VI) sequestration in non-uraninite and non-uranyl phases", **M. Boyanov**, E. O'Loughlin, B Mishra, X. Rui, K. Kemner, American Chemical Society National Meeting, Denver, Aug. 28 – Sept. 1, 2011
174. "Binding of Hg(II) to high affinity sites on bacteria inhibits reduction to Hg(0) by mixed Fe(II/III) phases", Mishra, B., E.J. O'Loughlin, **M.I. Boyanov**, and K. Kemner. 242nd American Chemical Society National Meeting, Denver, CO., Aug. 28 – Sept. 1, 2011
175. "Reduction of HgII by Non-Stoichiometric Magnetite" , T. Pasakarnis, M. Scherer, G. Parkin, **M. Boyanov**, K. Kemner, B. Mishra, Ed O'Loughlin, American Chemical Society National Meeting, Denver, Aug. 28 – Sept. 1, 2011
176. "Reduction of Biogenic Uranyl Phosphate Nanoparticles by Three Metal-Reducing Bacteria", Rui X, **Boyanov M**, Kwon MJ, O'Loughlin E, Dunham-Cheatham S, Fein J, Bunker B & Kemner K, Goldschmidt 2011, Prague, August 14-19, 2011
177. "Roles of Sulfate and FeIII Reduction on Microbial Community Development", Kwon MJ, **Boyanov MI**, Antonopoulos D, Brulc J, Kemner K & O'Loughlin EJ, Goldschmidt 2011, Prague, August 14-19, 2011
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181. "Reduction of phosphate doped iron oxides by *Shewanella putrefaciens* CN3", E. O'loughlin, C. Gorski, K. Kemner, **M. Boyanov**, R. Cook, M. Scherer; Americal Society for Microbiology general meeting, New Orleans, May 21-24, 2011
182. "U(VI) Reduction In Contaminated Sediments With Oleate, Emulsified Vegetable Oil And Ethanol As Electron Donor", W-M. Wu, D. Watson, G. Zhang, T. Gihring, C. Schadt, T. Mehlhorn, F. Zhang, S. Kelly, **M. Boyanov**, K. Kemner, J. Van nostrand, P. Zhang, J. Zhou, W. Overholt, S. Green, J. Kostka,

C. Criddle, P. Jardine, S. Brooks; Americal Society for Microbiology general meeting, New Orleans, May 21-24, 2011

183. "Bioreduction of nanoparticulate uranyl phosphate", X. Rui, **M. Boyanov**, M. J. Kwon, E. J. O'Loughlin, S. Dunham-Cheatham, J. Fein, B. A. Bunker, K. Kemner, APS Users meeting, Argonne, IL, May 3, 2011
184. "Reduction of U(VI) and Hg(II) by Magnetite", T. Pasakarnis, D. Latta, M. Scherer, **M. Boyanov**, K. Kemner, E. O'Loughlin, B. Mishra. Subsurface Biogeochemistry Research PI meeting, Washington D.C., April 26-28, 2011
185. "Effects of Incorporated P on the Bioreduction of Fe(III) Oxides", E. O'Loughlin, **M. Boyanov,** C. Gorski, M. McCormick, M. Scherer, K. Kemner. Subsurface Biogeochemistry Research PI meeting, Washington D.C., April 26-28, 2011
186. "Role of Sorbents in Abiotic Redox Transformations of Hg(II)", B. Mishra, E.J. O'Loughlin, T. Pasakarnis, **M.I. Boyanov**, M.M. Scherer, K.M. Kemner. Subsurface Biogeochemistry Research PI meeting, Washington D.C., April 26-28, 2011
187. "Non-Uraninite U(IV) Phases in Biostimulated Sediments from the Oak Ridge IFRC", **M.I. Boyanov**, E.J. O'Loughlin, K. Skinner-Nemec, S.D. Kelly, W.-M. Wu, C. Criddle,F. Yang, T. Marsh, M. Mueller, T. Melhorn, K. Lowe, D. Watson, S. Brooks, K. Kemner. Subsurface Biogeochemistry Research PI meeting, Washington D.C., April 26-28, 2011
188. "Microbial Community Development under Sulfate- and Iron-Reducing Conditions Based on Electron Donor and Electron Shuttle Amendment", D. Antonopoulos, **M. Boyanov**, J. Brulc, E. Johnston, M.J. Kwon, P. Long, T. Marsh, M. McCormick, F. Meyer, R. Sanford, K. Skinner, K. Williams, D. Sholto-Douglas, E. O'Loughlin, K. Kemner, Subsurface Biogeochemistry Research PI meeting, Washington D.C., April 26-28, 2011
189. "Biological Reduction of Uranium in the Contaminated Subsurface by Slow-Release Electron Donor", W. Wu (PI), C.S. Criddle, D. Watson, S. Brooks, C. Schadt, T. Gihring, G. Zhang, T. Melhorn, K. Lowe, J. Phillips, C. Brandt, P. Jardine, K. Kemner, **M. Boyanov**, J. Kostka, Q. Overholt, S.J. Green, P. Zhang, J. Von Nostrand, J. Zhou. Subsurface Biogeochemistry Research PI meeting, Washington D.C., April 26-28, 2011
190. "ORNL IFRC: Multiscale Investigations on the Rates and Mechanisms of Targeted Immobilization and Natural Attenuation of Radionuclides and Co-Contaminants in the Subsurface", S.C. Brooks, D.B. Watson, G.S. Baker, **M. Boyanov**, C.C. Brandt, C.S. Criddle, B. Gu, S.S. Hubbard, K. Kemner, J.E. Kostka, J.C. Parker, G. Tang, W.-M. Wu, T. Zimmerman, F. Zhang, J. Zhou, Subsurface Biogeochemistry Research PI meeting, Washington D.C., April 26-28, 2011
191. "Anaerobic Biogeochemical Processes in Hanford 300 Area IFRC Subsurface Sediments", J. Fredrickson, J.-H. Lee, X. Lin, R. Kukkadapu, A. Plymale, D. Kennedy, A. Konopka, B. Bjornstad, D. Moore, T. Resch, J. Phillips, J. McKinley, J. Zachara, **M. Boyanov**, S. Held, K. Kemner. Subsurface Biogeochemistry Research PI meeting, Washington D.C., April 26-28, 2011
192. "The Role of Nanopores on U(VI) Sorption and Redox Behavior in Contaminated Subsurface Sediments", H. Xu, E.E. Roden, K.M. Kemner, H.-B. Jung, Y. Sun, J. Konishi, B. Mishra, **M.Boyanov**. Subsurface Biogeochemistry Research PI meeting, Washington D.C., April 26-28, 2011
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196. "Uranium Biogeochemistry – Novel Insights from a Microbe's Prospective",Sanford R, Fletcher K, Thomas S, Kemner K, **Boyanov M**, Ritalahti K & Loeffler F, International Goldschmidt meeting, Knoxville TN, June 17, 2010

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198. "Molecular Scale Transformations of Hg(II) during Coupled Biotic and Abiotic Processes", Mishra B, **Boyanov M**, O'Loughlin E & Kemner K, International Goldschmidt meeting, Knoxville TN, June 15, 2010
199. "Mineral Nucleation and Redox Transformations of U(VI) and Fe(II) Species at a Carboxyl Surface:, **Boyanov M**, O'Loughlin E, Kwon M-J, Mishra B, Rui X, Shibata T & Kemner K, International Goldschmidt meeting, Knoxville TN, June 17, 2010
200. "In situ Biostimulation of U(VI) Reduction and Immobilization Using Emulsified Vegetable Oil", Wu W, Watson D, Mehlhorn T, Earles J, **Boyanov M**, Gihring T, Schadt C, Lowe K, Phillips J, Kemner K, Spalding B, Criddle C, Jardine P & Brooks S, International Goldschmidt meeting, Knoxville TN, June 15, 2010
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203. "Biogeochemical Response to Injection of Emulsified Edible Oil in the Uranium(VI) Contaminated Subsurface at the US DOE IFRC Site, Oak Ridge, TN.",W. Wu, D. Watson, T. Mehlhorn, K. Lowe, J. Phillips, J. Earles, G. Zhang, T. Gihring, **M. Boyanov**, J. D. Van Nostrand, W. A.Overholt, S. J. Green, K. Kemner, C. Schadt, J. E. Kostka, J.Zhou, C. S. Criddle, P. Jardine, S. Brooks, ASM Meeting, San Diego, CA, May 24, 2010
204. "The Evolution of Microbial Communities Within Iron-rich Mineral Suspensions Inoculated with Sediments from an UMTRA Site", D. A. Antonopoulos, B. S. Bates, **M. I. Boyanov**, J. M. Brulc, M. Egholm, A. Garoutte, T. Harkins, M. Kwon, P. Long, F. Meyer, E. J. O'Loughlin, J. Osterberger, B. B. Simen, K. A. Skinner, J. Wilkening, K. H. Williams, K. M. Kemner, ASM Meeting, San Diego, CA, May 24, 2010
205. "Design and Application of Microbial-Uranium-Reduction Monitoring Tools",R. Sanford, C. Lundstom, T. Johnson, K. Kemner, **M. Boyanov**, K. Pennell, K. Ritalahti, F. Loeffler, Subsurface Biogeoscience Research PI meeting, Washington D.C. , March 30, 2010.
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207. "Multiscale Investigations on the Rates and Mechanisms of Targeted Immobilization and Natural Attenuation of Radionuclides and Co-Contaminants in the Subsurface",S.C. Brooks, D. Watson, G. Baker, **M. Boyanov**, C.C. Brandt, C.S. Criddle, B. Gu, K. Horita, S.S. Hubbard, LBNL; K. Kemner, J.E. Kostka, J. Luo, A.V. Palumbo,J. Parker, C.W. Schadt, B. Spalding, W.-M Wu, F. Zhang, J. Zhou, Subsurface Biogeoscience Research PI meeting, Washington D.C. , March 30, 2010.
208. "In Situ Biostimulation of Uranium Reduction and Immobilization Using Emulsified Vegetable Oil as Electron Donor at the Oak Ridge IFRC Site", W. Wu, D. Watson, T. Melhorn, J. Earles, **M. Boyanov**, T.M. Gihring, G. Ahang, C. Schadt, K. Lowe, J. Phillips, K. Kemner, B. Spalding,Yux. Wu, S.S. Hubbard, G. Baker, C.S. Criddle, P. Jardine, S. Brooks, Subsurface Biogeoscience Research PI meeting, Washington D.C. , March 30, 2010.
209. "Microbial Community and Biogeochemical Dynamics under Sulfate- and Iron-Reducing Conditions", M.J. Kwon, D. Antonopoulos, D. Bartels, B.S. Bates, **M. Boyanov**, J. Brulc, M. Egholm, A. Garoutte, C. Giometti, T. Harkins, P. Long, T. Marsh, M. McCormick, F. Meyer, J. Osterberger, R. Sanford, K. Skinner, J. Wilkening, K.H. Williams, K. Kemner, E. O'Loughlin, Subsurface Biogeoscience Research PI meeting, Washington D.C. , March 30, 2010.
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212. "Reduction of uranium(VI) by iron(II) species and minerals: Reactivity and uranium(IV) products", **M.Boyanov**, D.Latta, E. O'Loughlin, C.Gorski, M.Scherer, K.Kemner, 2010 ACS Meeting, San Francisco, CA, March 25, 2010.
213. "Electron donor effects on the biological reduction of iron oxides under sulfate-rich conditions", M-J Kwon, D Antonopoulos, **M Boyanov**, J Brulc, P Long, B Mishra, K Skinner, K Williams, K Kemner, E O'Loughlin, 2010 ACS Meeting, San Francisco, CA, March 25, 2010.
214. "Effects of phosphate doping on the bioreduction of iron oxide ", E O'Loughlin, C Gorski, K Kemner, **M Boyanov**, R Cook, M Scherer, 2010 ACS Meeting, San Francisco, CA, March 25, 2010.
215. "Coupled biotic-abiotic redox transformations of uranium near the mineral-microbe interface", K Kemner, **M Boyanov**, Ed O'Loughlin, D Sholto-Douglas, K Nemec, B Lai,R Cook, E Carpenter,V Harris,S Kelly, K Nealson, 2010 ACS Meeting, San Francisco, CA, March 25, 2010.
216. "Combined x-ray, chemical, and biological characterization of biostimulated and sulfate-amended sediments from the Oak Ridge Field Research Center", **M. Boyanov**, E. O'Loughlin, K. Skinner, M.-J. Kwon, S. Kelly, F. Yang, T. Marsh, W.-M. Wu, C. Criddle, K. Kemner, 2009 American Geophysical Union meeting, San Francisco, December 16, 2009.
217. "The New MRCAT (Sector 10) Bending Magnet Beamline at the Advanced Photon Source,", A. J. Kropf, J. Katsoudas, S. Chattopadhyay, T. Shibata, E. Lang, V. Zyryanov, B. Ravel, K. McIvor, K. M. Kemner, **M. I. Boyanov**, K. G. Scheckel, S. R. Bare, J. Terry, S. D. Kelly, B. A. Bunker, and C. U. Segre, Tenth International Conference on Synchrotron Radiation Instrumentation, Melbourne, Australia, September 2009.
218. "Using U L_{III}-edge microXANES investigations of contaminant transformations near bacterial surfaces", Kemner, K. M., E. J. O'Loughlin, **M. Boyanov**, D. Sholto-Douglas, K. Skinner-Nemec, B. Lai, R. E. Cook, E. Carpenter, V. G. Harris, and K. H. Nealson, The 14th International Conference on X-ray Absorption Fine Structure in Camerino, Italy, July 26-31, 2009.
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220. "Distinct uranium(IV) products result from uranyl reduction in different ferrous-ferric oxyhydroxide systems", **M.Boyanov**, D.Latta, E. O'Loughlin, C.Gorski, M.Scherer, K.Kemner, Goldschmidt Meeting in Davos, Switzerland, June 22, 2009.
221. "Effects of oxyanions, natural organic matter, and Fe(III) oxide mineralogy on the formation of Fe(II)-bearing secondary mineralization products resulting from the bioreduction of Fe(III) oxides", E. O'Loughlin, C.Gorski, D.Latta, **M.Boyanov**, R.Cook, M.Scherer, K.Kemner, Goldschmidt Meeting in Davos, Switzerland, June 23, 2009.
222. "Uranium reduction is a common trait of *Desulfitobacterium* Spp.", K.Fletcher, S.Thomas, Q.Wu, M.Beazley, K.Kemner, **M.Boyanov**, F.Löffler, ASM Meeting in Philadelphia, PA, May 18, 2009.
223. "Microbial community analyses of iron-rich mineral suspensions inoculated with sediments from a uranium mill tailings site", D. Antonopoulos, A.Ammar, B. Bates, **M.Boyanov**, M.Domanus, M-J.Kwon, P.Long, F.Meyer, E.O'Loughlin, D.Sholto-Douglas, K.Skinner-Nemec, K.Williams, K.Kemner, ASM Meeting in Philadelphia, PA, May 18, 2009.
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225. "Effect of carbonate ligands on the speciation and reduction of U(VI) by Fe(II) at a carboxyl surface", **M.Boyanov**, E. O'Loughlin , K.Kemner, ACS Meeting in Salt Lake City, March 24, 2009.
226. "Magnetite versus green rust: Effects of phosphate on the formation of Fe(II)-bearing secondary mineralization products resulting from the bioreduction of Fe(III) oxides", E. O'Loughlin, C. Gorski, K.Kemner, **M.Boyanov**, R. Cook, D. Latta, M. Scherer, ACS Meeting in Salt Lake City, March 24, 2009.
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228. "X-ray micro(spectro)scopy investigations of transformations at the mineral-metal-microbe interface", K. M. Kemner, T. J. Beveridge, **M. I. Boyanov**, R. E. Cook, A. Dohnalkova, J. K. Fredrickson, S. Glasauer, S. D. Kelly, B. Lai, M. J. Marshall, E. J.O'Loughlin, B. D. Ravel, D. Sholto-Douglas, ACS Meeting in Chicago, March 25-29, 2007
229. "Mechanisms of U(VI) uptake and reduction by carbonate, sulphate, and chloride green rusts studied by XAFS", **M.Boyanov**, E. O'Loughlin , S.Smith, S.Kelly, D.Latta, B.Ravel, M.St.Clair, M.Scherer, K.Kemner, ACS Meeting in Chicago, March 25-29, 2007
230. "Transformation of uranium by biogenic Fe(II) phases resulting from thebioreduction of Fe(III) oxides by Shewanella putrefaciens CN32". E. J. O'Loughlin, S. D.Kelly, **M. I. Boyanov**, M. M. Scherer, K. M. Kemner, ACS Meeting in Chicago, March 25-29, 2007
231. "XAFS of U(VI)-Fe(II) sorption to carboxyl surfaces as a model for redox interactions at the cell wall", **M.Boyanov**, E.O'Loughlin, E.Roden, S.Kelly, B.Ravel, J.Fein, K.Kemner, ACS Meeting in Chicago, March 25-29, 2007.
232. "X-ray microscopy of uranium precipitates near single bacterial cells", **M.I. Boyanov**, B. Lai, M.J. Marshall, A.C. Dohnalkova, J.K. Fredrickson, K.M. Kemner; Actinide XAS 2006 Conference, Karlsruhe, Germany; September 18-20, 2006.
233. "The effect of Fe(II)-Fe(II) coordination on the reduction of U(VI) at a carboxyl surface determined by titration and XAFS", **M.I. Boyanov**, E.J. O'Loughlin, E.E. Roden, J.B. Fein, K.M. Kemner; Actinide XAS 2006 Conference, Karlsruhe, Germany; September 18-20, 2006.
234. "A pH-dependent X-ray Absorption Spectroscopy study of U adsorption to bacterial cell walls", B. Ravel, S. D. Kelly, D. Gorman-Lewis, **M. I. Boyanov**, J. B. Fein and K. M. Kemner; 13th International XAFS Conference, Stanford University, Palo Alto, CA, July 9-14, 2006.
235. "The Role of Shewanella oneidensis MR-1 Outer Membrane c-Type Cytochromes in Extracellular U(IV)O2 Nanoparticle Formation," D. W. Kennedy, M. J. Marshall, A. S. Beliaev, A. C. Dohnalkova, L. Shi, Z. Want, **M. I. Boyanov**, B. Lai, K. M. Kemner, J. S. McLean, S. B. Reed, V. L. Bailey, D. A. Saffarini, M. F. Romine, J. M. Zachara, and J. K. Fredrickson; American Society of Microbiology Meeting, May 21-25, 2006, Orlando.
236. "Biomolecular Mechanisms of U(IV)O2 and Tc(IV)O2 Nanoparticle Formation by Shewanella oneidensis MR-1," M. J. Marshall, A. S. Beliaev, D. W. Kennedy, A. E. Plymale, A. C. Dohnalkova, L. Shi, Z. Wang, **M. I. Boyanov**, B. Lai, K. M. Kemner, J. S. McLean, S. B. Reed, D. E. Culley, B. L. Bailey, C. J. Simonson, D. A. Saffarini, M. F. Romine, Y. A. Gorby, J. M. Zachara, and J. K. Fredrickson; Environmental Remediation Science Program PI Meeting, Arlie, VA, April 3-5, 2006.
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238. "U(VI) reaction with green rusts: Influence of anions" St. Clair, M., S. L. Smith, J. O. Harrison, E. J. O'Loughlin, K. M. Kemner, **M. I. Boyanov**, M. M. Scherer; 231st American Chemical Society National Meeting, Atlanta, GA, March 26-30, 2006.
239. "Reduction of U(VI) by Fe(II) at a model cell surface: reactive species, products, and insight obtained by EXAFS", **M.I. Boyanov**, E.J. O'Loughlin, S.K. Kelly, J.B. Fein, E.E. Roden, K.M. Kemner; Synchrotron Environmental Science III, Brookhaven National Laboratory, Upton, NY; September 19-21, 2005.
240. "Investigation of the transformations of Uranium under Fe reducing conditions: Reduction of U(VI) by biogenic Fe(II) in Green Rust", E.J. O'Loughlin, M. Scherer, K.M. Kemner, J. Harrison, **M.I. Boyanov**, S.K. Kelly; NABIR PI Meeting, Warrenton, VA; April 18-20, 2005.
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242. "Characterization of the c-type Cytochromes and the Type II Secretion System of *Shewanella oneidensis* MR-1 in Radionuclide Reduction and Localization", M.J.Marshall, D.W.Kennedy, A.C.Dohnalkova, A.E.Plymale, D.A.Saffarini, **M.I.Boyanov**, K.M.Kemner, B.Lai, S.B.Reed, D.E.Culley, M.F.Romine, A.S.Beliaev, J.M Zachara, J.K.Fredrickson; The Joint International Symposia for Subsurface Microbiology (ISSM 2005) and Environmental Biogeochemistry (ISEB XVII), Jackson Hole, Wyoming - August 14-19, 2005.

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REFERENCES

Prof. Bruce Bunker
Department of Physics
University of Notre Dame
Notre Dame, IN 46556
email: bunker.1@nd.edu
www: http://www.nd.edu/~bunker/
tel: 1 (574) 631-7219
fax: 1 (574) 631-5952

Dr. Kenneth Kemner
Biological Sciences Division
Argonne National Laboratory
Argonne, IL 60439
email: kemner@anl.gov
www:http://www.bio.anl.gov/environmental_biology/subsurface_science/index.html
tel: 1 (630) 252-1163
fax: 1 (630) 252-9793

Dr. Edward O'Loughlin
Biological Sciences Division
Argonne National Laboratory
Argonne, IL 60439
email: oloughlin@anl.gov
www: http://www.bio.anl.gov/PI/oloughlin.html
tel: 1 (630) 252-9902
fax: 1 (630) 252-9793

Prof. Frank Löffler
Governor's Chair Professor
Microbiology, U of Tennessee
706 Science and Engineering Building
1414 Circle Drive
Knoxville, TN 37996-2000
email: frank.loeffler@utk.edu
www:http://web.utk.edu/~microlab/LoefflerLab/Home.html
tel: 1 (865) 974-4004
fax: 1 (865)974-2669

Prof. Jeremy Fein
Department of Civil Engineering &
Geological Sciences
University of Notre Dame
Notre Dame, IN 46556
email: fein@nd.edu
www: https://engineering.nd.edu/profiles/jfein
tel: 1 (574) 631-6101
fax: 1 (574) 631-9236

Prof. Michelle M. Scherer
4126 Seamans Center for the
Engineering Arts and Sciences
University of Iowa
Iowa City, IA 52242-1527
email: michelle-scherer@uiowa.edu
www:http://www.engineering.uiowa.edu/cee/faculty-staff/michelle-m-scherer
tel: 1 (319) 335-5654
fax: 1 (319) 335-5660

Prof. Eric E. Roden
Department of
Geology and Geophysics
University of Wisconsin-Madison
Madison, WI 53706
email: eroden@geology.wisc.edu
www:http://geoscience.wisc.edu/geoscience/people/faculty/eric-roden/
tel: 1 (608) 890-0724
fax: 1 (608) 262-0693

Prof. William Burgos
Professor of Environmental Engineering
and Professor in Charge of Graduate Programs
Department of Civil & Environmental Engineering
Pennsylvania State University
Office: 212 Sackett Building
University Park, PA 16802 USA
email: wdb3@psu.edu
www:http://www.engr.psu.edu/ce/enve/burgos/new/
tel: 1 (814) 863-0578
fax: 1 (814) 863-7304

(last updated May 16, 2024)