RONALD C. SIMS **CV 12/2024**

Professor, Department of Biological Engineering

Summary

I am a **biology science-based engineer with a focus on protection of public health and the environment.** My major research achievements **over the past four decades** are highlighted as follows:

. Huntsman Corporation Endowed Professorship in Biological & Environmental Engineering (2022)

· Highest recognitions in two professional organizations: **Fellow** of the American Institute for Medical and Biological Engineering (2018-present) and **Fellow** of the Institute of Biological Engineering (2020-present)

· Research awards: **Utah Governors' Medal for Science and Technology** (1993); **D. Wynn Thorne Career Research Award** (2021)

· Publication records: **269 publications** with 133 refereed journal publications. Google Scholar shows **11,000+ citations, an H-Index of 48, and an i10-index = 114 (https://scholar.google.com/citations?user=lRhfMCAAAAAJ&hl=en)**

· Grant awards: Over **$16 M** as PI and Co-PI of **53 projects**. Including as the PI of a current $2.4 M project from the U.S. Department of Energy on waste-to-value with bioplastic and biofuels and a new (April, 2024) NSF 1.0 M award as Co-PI in Biomanufacturing and a new (December 2024) Utah System of Higher Education $750k award as Co-PI for Workforce Development in the Biomanufacturing and Bioprocessing area.

· Mentoring graduate and undergraduate students: **60-70 individual students annually**. Ron has been Faculty Mentor for 38 undergraduate students each year (last 8 years) and Advisor or Major Professor of 19 Ph.D. students and 41 M.S. students during his 43 years of service at USU.

· Leadership in a professional organization: **President** of the Institute of Biological Engineering (2012)

· Leadership at USU: **Head** of Biological & Irrigation Engineering Department (2003-2010), **Founding Head** of the Department of Biological Engineering (2010-2014), **Director** of the Utah Water Research Laboratory (1996-2003), **Co-Director** of the Sustainable Waste to Bioproducts Engineering Center (2010-present), **Environmental Engineering Division Head** (1984-1996)

. Last 4 years teaching four classes per year (Capstone Design (3) and Biochemical Engineering(1)), and one martial art class (Aikido) through the Department of Kinesiology each semester.

Education:

PhD Biological & Agricultural Engineering, North Carolina State University, Raleigh, NC, 1982

MS Environmental Engineering, Washington State University, Pullman, WA, 1977

MS Environmental Biology & Chemistry, School of Global Public Health, Department of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill, NC 1972

BS Biology (Chemistry minor), University of Dayton, Dayton, OH, 1970

Research areas:

Biological Engineering related to Public Health and the environment, Bioprocess Engineering, Wastes to Bioproducts, Sustainable Energy Engineering, Microalgae Biofilm Theory and Applications, Drinking Water Treatment, Wastewater Treatment, and Bioremediation of Toxic and Hazardous Industry Chemicals

Teaching areas: undergraduate and graduate students in every class identified below:
Biochemical Engineering, Capstone Design, Thermodynamics, Downstream Processing, Introduction to Biological Engineering, Transport Phenomena, Toxic/Hazardous Waste Treatment, Biological Wastewater Treatment Processes, Physico-chemical Water Treatment Processes, Land Application of Wastes, and Introduction to Environmental Engineering

Employment History & Experience:

1/15 – present	Professor of Biological Engineering (BE), and Co-Director of the Sustainable Waste to Bioproducts Engineering Center, USU
4/10-12/14	Founding Head, Department of Biological Engineering (BE), USU
9/03-3/10	Head, Department of Biological & Irrigation Engineering (BIE), USU
6/02-9/09	University Programs Coordinator for DOE/ Inland Northwest Research Alliance
1996-2003	Director, Utah Water Resources Research Center and Research Laboratory, and Professor, Department of Civil and Environmental Engineering (CEE)
1988-1996	Head, Division of Environmental Engineering, and Professor, CEE Department and Professor, Interdisciplinary Program in Toxicology
1988-1989	Visiting Engineer with the U.S. Environmental Protection Agency, Robert S. Kerr Environmental Research Laboratory, Ada, OK (Sabbatical)
1988-1990	Head, Division of Environmental Engineering
1988-1991	Environmental Engineering and Associate Professor, CEE Department, and Associate Professor, Interdisciplinary Program in Toxicology
1984-1985	Head, Division of Environmental Engineering and Research Associate Professor, CEE Department and Interdisciplinary Program in Toxicology
1983-1984	Head, Division of Environmental Engineering and Research Assistant Professor, CEE Department and Utah Water Research Laboratory
1982-1983	Research Assistant Professor, CEE Department and joint appointment with the Utah Water Research Laboratory, Utah State University, Logan, UT
1977-1979	Environmental Engineer, Process Engineering Department, Research Triangle Institute, Research Triangle Park, NC
1973-1975	Supervisor, Environmental Control Laboratory, Bayer AG, Verona Dyestuffs Division of Bayer Inc., Mobay Chemical Corporation, Charleston, SC
1972-1973	Director, International Program in Environmental Aspects of Industrial Development, University of North Carolina at Chapel Hill, Chapel Hill, NC

Administrative Employment History & Experience:

8/10-present	Co-Director, Sustainable Waste-to-Bioproducts Engineering Center (SWBEC)
4/10-12/14	Head, Department of Biological Engineering (BE), USU
9/03-3/10	Head, Department of Biological & Irrigation (BIE) Engineering, USU
11/96-8/03	Director, Utah Water Research Laboratory, Utah State University, Logan, UT
1984-1996	Head, Division of Environmental Engineering, Civil and Environmental Engineering Department, Utah State University, Logan, UT
1973-1975	Supervisor, Environmental Control Laboratory, Bayer AG, Verona Dyestuffs Division of Bayer, Inc., Mobay Chemical Corporation, Charleston, SC

1972-1973 Director, International Program in Environmental Aspects of Industrial Development, University of North Carolina at Chapel Hill, Chapel Hill, NC

USU Academic Teaching (CEE, Biological and Irrigation Eng, and BE Departments)
1982-present: Utah State University Faculty - Undergraduate courses in Biochemical Engineering, Biological Thermodynamics, Bioprocess Engineering, Downstream Processes, Water and Wastewater Treatment Unit Operations and Unit Processes, Agricultural Waste Management, and Land Treatment of Wastes; Graduate courses in Biochemical Engineering, Biophotonics, Downstream Processes, Biological Process Engineering, Biological Waste Treatment Processing, Industrial Waste Treatment, Soil-based Hazardous Waste Management, and Introduction to Research and Teaching/Presentation Methods

Major Research Projects Awarded (PI or Co-PI): 52 totaling $15 Million

2025 Biological Remediation of Fruit Residue. Frulact Inc. ($24,000)

2024-2027 Intermountain Biomanufacturing Center: Workforce Training. NSF. ($1 Million)

2024-2027 Biomanufacturing and Bioprocessing M.S. Degree Program Development. Utah System of Higher Education ($750,000)

2024–2026 Algae Hydrolysates for Media Quality Value for Cellular Agriculture. Upside Foods. ($50,000)

2022-2024 Research, Development, and Testing of Biological Reactors for Large-Scale Plasmid DNA Production Processes. Thermo Fisher Scientific, Inc. $120,000 (PI)

2020-2025 Synergistic Municipal Wastewater Treatment Using a Rotating Algae Biofilm Reactor. **U.S. Department of Energy Bioenergy Technologies Office, Washington, D.C.** $2.4 Million (PI)

2017-2019 Bioenergy, Nutrient Recycling, and Waste Reduction from Municipal Reclaimed Water. **Utah Science, Technology, and Research (USTAR) Program, Central Valley Water Reclamation Facility, and WesTech-Inc. Engineers.** $350,000 (PI)

2017-2019 Reuse/Recycling of Produced Water using Halophytic Algae from the Great Salt Lake. **Utah Energy Research Triangle Scholars Program**. $15,000 (w/student)

2017-2019 Harmful Algal Blooms Management Using Anaerobic Detoxification and Bioenergy Production. **State of Utah Water Research Laboratory**. $10,000 (PI)

2015-2016 Sustainable Bioenergy from Produced Water. **Utah Office of Energy Development**. $125,000 (PI)

2015-2017 Bioreactor Application to Utah Industry for Existing Commercial Need for Petroleum Refining Waste Management. **Utah Science Technology and Research (USTAR) Agency**. $88,000 (PI)

2014-2017 Treatment of Municipal, Diary, and Swine wastes using Anaerobic Processing for Water Quality Improvement and Renewable Bioenergy Production**. WesTech-Inc.,** Salt Lake City and USU Animal Science ($40,000) (PI)

2012-2014 Scale-Up of Algae Bioproducts Production. **USTAR Agency/Synthetic Biomanufacturing Center**. $270,000 (PI).

2012-2014 Scale-Up of Bioplastics and Spider Silk Production from Algae. **USTAR Agency/Synthetic Biomanufacturing Center.** $519,360 (PI)

2011-2012 Algae Testing and Evaluation for Logan Lagoons Upgrade. **Carollo Engineers**, Salt Lake City, UT. $25,000. (PI).

2008-2012 Synthetic Biomanufacturing Center. **State of Utah (USTAR**) Agency. $7.3 Million total. (PI H. Scott Hinton, Co-PIs: Ron Sims, Daryll DeWald, and Jon Takemoto).

2008-2014 Biological Phosphorus Removal Combined with Bioenergy Production Research at the City of Logan Lagoons. David Stevens(PI) and Ronald Sims (Co:PI). **Environmental Department, City of Logan**, Utah. $491,420.

2007-2011 Biofuels and Bioproducts Production from Microalgae. **State of Utah (USTAR) Agency**. $6.5 Million total ($1.6 Million - R. Sims, B. Wood, and L. Seefeldt).

2006-2008 Biotechnology & Bioremediation Initiative**. U.S. Department of Energy Inland Northwest Research Alliance** (INRA). $250,000 (PI)

2006-2008 FTIR Spectrometer Microscope System for Bioremediation**. U.S. Department of Defense**, U.S. Army Research Office. $160,000 (Co-PI)

2005-2008 Genomic Sequencing of Polycyclic Aromatic Hydrocarbon Degrading Non-Pathogenic Mycobacteria. Miller, C.D., A.J. Anderson, and R.C. Sims **(U.S. DOE/ Joint Genome Institute**, $1.5 Million with sequencing paid for and conducted through DOE/JGI

2004-2007 Plant Root-mycobacterium Interactions Beneficial in Remediation of Polyaromatic Hydrocarbons (PAH). Anderson, A.J., C.D. Miller and R.C.Sims **National Science Foundation**, $473,000 (Co-PI)

2003-2009 Evaluating Hyporheic Zone Biodegradation/Attenuation of MTBE & Other Oxygenates. R.C. Sims **American Petroleum Institute**, $95,866 (PI)

2001-2005 Removal of Pharmaceutical Chemicals in Drinking Water Treatment Systems **Pfizer Global Research and Development**. $150,000 (Co-PI)

2000-2005 Fate of Surfactants in Land Treatment Plant-Soil Systems **Alkyl Phenol Ethoxylates Research Council** (APERC), $180,000 (PI)

1999-2009 MTBE and Petroleum Toxicity and Biodegradation in Contaminated Soils **American Petroleum Institute**, $64,134

1998-2003 Utah Training Center for On-Site Wastewater Treatment & Reuse. **U.S. EPA**, **Kennecott Copper Corporation**, **State of Utah Department of Environmental Quality**, $250,000] (J. L. Sims and R. C. Sims)

1995-2002 Field Scale Relationship of PAH Parent Compound Disappearance to Humification, Mineralization, Leaching, and Volatilization of Transformation Intermediates. **U.S. Environmental Protection Agency** Hazardous Substance Research Center, $317,800

1995-1999 Revegetation of Exploration and Production Sites. **Exxon Production and Exploration Corporation**, $60,000 (Co-PI)

1994-1998 Guidance for the Use of Prepared Bed Land Treatment as a Bioremedial Technology for PAH and other chemicals **U.S. EPA**, $180, 391 (PI)

1994-1996 Vegetation Assisted Remediation of Metal Contaminated Soils for Protection of Public Health. **U.S. Geological Survey**, Washington, DC, $41,000 (PI)

1994-1996 Libby, Montana Superfund Site: Prepared-Bed Bioremediation of PAH and PCP in Buried Lifts & Oxygen Concentration in Soil Gas. **U.S. EPA**, $150,000(PI)

1992	Bioengineering for Water Cleanup: State-of-the-Art Assessment **National Geographic Society**, Washington, DC, $41,771 (Co-PI)
1991-1996	Treatability Studies for Subsurface Remedial Actions. U.S. EPA Robert S. Kerr Environmental Research Laboratory, **U.S. Environmental Protection Agency**, Ada, OK, $320,000 (PI)
1990-1996	Environmental Behavior of Organic Substances (PAH and PCP) in Soil and Groundwater. **Electric Power Research Institute (EPRI)**, Palo Alto, CA, $1.9 million (PI)
1989-1991	Environmental Contaminant Property Estimation Using Quantitative Structure Activity Relationships (QSARs). **Department of Defense**, Washington, DC, $ 285,000
1988-1992	Biological Hazardous Waste Management of PAH Contaminated Soil Using *Phanerochaete Chrysosporium*: Bioreactor Engineering Design and Operation. **National Institute of Environmental Health Sciences**, Research Triangle Park, NC, $100,000
1988-1992	Soil Transport/Fate Data Base Design/ Development. Robert S. Kerr Environmental Research Laboratory, **U.S. Environmental Protection Agency**, Ada, OK, $46,000 (PI)
1988	Capital Facilities Needs for Water Treatment Plants in the State of Utah: 1989-2008**. State of Utah Department of Health**, Salt Lake City, UT, $10,000
1988-1989	Evaluation of the Effect of Deep-Rooted Grasses on Biological Degradation of Polynuclear Aromatic Hydrocarbons (PAHs) in Unsaturated Soil. **Union Carbide Corporation**, Charleston, WV, $15,000
1987-1990	Evaluation of Cooxidation Mechanisms in the Removal of Polynuclear Aromatic Hydrocarbons from Vadose Zone Soil: In Situ Treatment of Hazardous Waste. Office of Research and Development, Exploratory Research Program**, U. S. Environmental Protection Agency,** Washington, DC, $222,000
1987-1991	Soil Treatment Decision-Model Development and Field Evaluation. Robert S. Kerr Environmental Research Laboratory**, U.S. Environmental Protection Agency**, Ada, OK, $90,000 (PI)
1987-1988	Soil Treatability Studies for PAHs for Land Treatment of Koch Refinery Waste, Minnesota (**Koch Refining Co.,** MN, $115,000)
1987-1989	Laboratory and Field Evaluation of Mechanisms of Particle Removal in Slow Rate Sand Filtration. **Rocky Mountain Energy Corporation**, Denver, CO, $9,000
1986-1989	Support Studies for Land Treatment Decision-Model Development/Verification and Input Data Generation. R. S. Kerr Environmental Research Laboratory**, U.S. Environmental Protection Agency**, Ada, OK, $249,000 (PI)
1986-1989	Use of Structure-Activity Relationships as an Permit Guidance Manual for Land Treatment Demonstrations for Hazardous Wastes. Office of Solid Waste, **U.S. Environmental Protection Agency**, Washington, DC, $140,000)Aid in Modeling the Subsurface Transport of Organic Contaminants (**U.S. Geological Survey**, Washington, DC, $80,000 (PI)

1985-1986 Treatment Evaluation of the Immobilization of Metals Associated with Industrial Wastes in Soil Systems. Region 8, **U.S. Environmental Protection Agency**, Denver, CO, $30,000 (PI)

1985-1986 Research Studies for Behavior of Petroleum Organic Chemicals in Unsaturated Soil – Land Treatment Systems. **American Petroleum Institute**, Washington, DC, $200,000

1985-1987 Protection of Groundwater by Immobilization of Hazardous Metals Associated with Industrial Wastes in Soil. **U.S. Geological Survey**, Washington, DC, $20,500

1985 Laboratory Treatability Studies and Field Scale Biological Remediation of Coal-Gasification Residues (PAHs) in Soil. **Thunder Basin Coal Company**, WY, $80,000

1983-1987 Waste-Soil Treatability Studies for Four Complex Industrial Wastes: Two Petroleum and Two Wood Preservative Wastes. Robert S. Kerr Environmental Research Laboratory, **U.S. Environmental Protection Agency**, Ada, OK, $380,000

1977-1979 Potable Water Treatment by Clinoptilolite Filtration. **International Minerals and Chemical Corporation**, Terre Haute, IN, $ 40,000

1983-1984 Comparison of Direct Filtration and Conventional Water Treatment Systems for Removal of Pollutants from Source Waters. **U.S. Geological Survey**, Washington, DC, $40,000 (PI)

1982-1984 Evaluation of the Mound System of On-Site Waste Disposal for Use in Utah. **State of Utah Mineral Lease Funds**, Utah Water Research Laboratory, Logan, UT, $42,000

1982-1984 In Situ Treatment Techniques Applicable to Large Quantities of Hazardous Waste Contaminated Soil (Risk Reduction Research Laboratory**. U.S. Environmental Protection Agency**, Cincinnati, OH, $ 92,000 (PI)

1982-1985 Use of Slow Rate Sand Filtration for Providing Drinking Water for Small Communities. **State of Utah Mineral Lease Funds**, Utah Water Research Laboratory, $60,000 (PI)

Refereed Publications: 133

Alga isolated from the Great Salt Lake used for biomass production for value bioproduct. 2024. Marine Biology and Oceanography. 7(3). EIMBO. DOI: 10.31031/EIMBO.2024.07.000662. B. Peterson and R. C. Sims.

Factorial experiment to identify two-way interactions between temperature, harvesting period, hydraulic retention time, and light intensity that influence the biomass productivity and phosphorus removal efficiency of a microalgae–bacteria biofilm. 2024. Water Science & Technology 90(11):2961-2977. doi: 10.2166/wst.2024.367. J. Watkins, C. Lords, A. M. Bradley, D. R. Cutler, and R. C. Sims.

Techno-economic analysis of bioplastic and biofuel production from a high-ash microalgae biofilm cultivated in effluent from a municipal anaerobic digester. 2024. Algal Research. 84, 103774. J. Watkins, Y. Zhu, P. Caldez, C. Lords, A. Zeller, P. Bohutskyi, and R. C. Sims.

Computational modeling of microalgal biofilm growth in heterogeneous rotating algal biofilm

Reactors (RABRs) for wastewater treatment. 2024. Applied Mathematical Modelling. https://doi.org/10.1016/j.apm.2024.04.021. G. B. Jones, R. C. Sims, and J. Zhao.

Dataset on biochemical composition and hydrothermal liquefaction of a native microalgae biofilm grown using municipal anaerobic digester effluent in Salt Lake City, Utah. 2024. National Institute of Allergy and Infectious Diseases. DOI |10.17632/fjfkhmn24k.1. Published 07-15. J. Watkins, H. Abdellaoui, E. Barton, C. Lords, and R. C. Sims.

An attached microalgae platform for recycling phosphorus through biologically mediated fertilizer formation and biomass cultivation. 2023. Cleaner engineering and Technology. https://doi.org/10.1016/j.clet.2023.100701. P. Goldsberry, P. Jeppesen, J. McLean, and R.C. Sims

Diatoms in wastewater treatment: potentials, applications, and values of biomass. 2023. Critical Reviews in Environmental Science and Technology. DOI: 10.1080/10643389.2023.2259278. T. Rahman, T. Jiang, C. Zhang, Y. Rao, R. C. Sims, and L. Hou.

Experimental and theoretical investigations of rotating algae biofilm reactors (RABRs): Areal productivity, nutrient recovery, and energy efficiency. 2023. Biotechnology and Bioengineering 120 (10): 2865-2879. **https://doi.org/10.1002/bit.28451**. Jones, G.B., Sims, R.C., and Zhao, J.

Existing empirical kinetics models in biochemical methane potential (BMP) testing, their selection and numerical solution. 2020. Water Journal 12(6): 1831. https://doi.org/10.3390/w12061831. Pererva, Y., Miller, C. D., and Sims, R.C.

Struvite formation associated with the microalgae biofilm matrix of a rotating algae biofilm reactor (RABR) during nutrient removal from municipal wastewater. 2020. Water Science & Technology 81(4): 644-655. Hillman, K., and Sims, R.C. https://doi.org/10.2166/wst.2020.133

Approaches in Design of Laboratory-Scale UASB Reactors. Processes. 2020. 6(8): 724-750. Pererva, Yehor & Miller, Charles & Sims, Ronald. doi.10.3390/pr8060734. June 24

Sulfur, Phosphorus and Metals in the Stoichiometric Estimation of Biomethane and Biohydrogen Yields. 2020. Processes Journal 8(6); pp. 714-722. Green Processes Section. DOI: 10.3390/pr8060714. Pererva, Y., Miller, C.D., and Sims, R.C.

In vitro Ruminal Fermentation Characteristics of Algae Protein Precipitate Supplemented in Lactation Dairy Diets in Continuous Culture. 2019. Internat'l. Jour. Innov. Res. Sci. Eng. and Technol. Vo. 8, No. 9, pp. 9207-9218. Yang, S., Sathish, A., Eun, J-S., Lee, Y., Fellner, V., and Sims, R.C

Augmentation of granular anaerobic sludge with algalytic bacteria enhances methane production from microalgal biomass. 2019. Fermentation 5(4):88; DOI: 10.3390/fermentation5040088. Doloman, A., Pererva, Y., Cortex, M., Miller, C. D. and Sims, R. C.

Activity of Preserved Anaerobic Sludge. 2019. Journal of Environmental Science and Health, Part A: Toxic/Hazardous Substances and Environmental Engineering of Science DOI: DOI: 10.1080/10934529.2019.1668654. Doloman, A., Sims, R.C., and Miller, C.D.

Lipid-Protein extraction from wastewater cultivated algae for animal feed: optimization and characterization. 2018. International Journal of Innovative Research in Science, Engineering, and Technology, 1 (1). Marlar, T., Sims, R.C., Sathish, A., and Hansen, M.

Microbial dynamics during anaerobic digestion of microalgal biomass in a USAB reactor. 2017. International Jour. of Microbiology (2017). Doloman, A., Soboh, Y., Sims, R.C., and Miller, C. D.

Nutrient and suspended solids removal from petrochemical wastewater via microalgal biofilm cultivation. 2017. Chemosphere 174, 46-48. Hodges, A., Fica, A., Wanlass, J., VanDarlin, J., and Sims, R.C.

Expanded shale flue dust as an additive for the coagulation of wastewater. 2017. Hodges, A., I. Hamud, R. C. Sims, and C. Miller. Int'l Jour. Innov. Res. Sci., Engg, & Technol.: 6(9).

Hydraulic retention time effects on wastewater nutrient removal and bioproduct production via rotating algal biofilm reactor. 2016. Bioresource Technology 211:527-533. DOI: 10.1016/j.biortech.2016.03.104. Shayan, S., Agbelvor, F., Bertin L., and Sims, R.C.

Algae-based biofilm productivity utilizing dairy wastewater. Jour. Biological Engineering 10:18-24. DOI: 10.1186/s13036-016-0039-y. 2016. Fica, Z. and Sims, R.C.

Upflow anaerobic sludge blanket reactor co-digestion of algae and acetate to produce methane. 2016. Water Environment Research. 88:11, 2091-2103. DOI:10.2175/106143016X14504669767490. Soboh, Y., Sorensen, and Sims, R.C.

Bioenergy from wastewater-based biomass. 2016. AIMS Bioengineering 3(1): 75-96. Sims. R.C., Bedingfield, S., Thompson, and Sims, J.L.

Techno-economic and lifecycle assessment of an attached growth algal biorefinery. 2016. Bioresource Technology. 220: 360-368. Barlow, J., Quinn, J., and Sims, R.C.

Biomass and Phycocyanin production from cyanobacteria dominated biofilm reactors cultured using oilfield and natural gas extraction produced water. 2015. Algal Research, 11: 165-168. Jonathan L. Wood, Charles D. Miller, Ronald C. Sims, Jon Y. Takemoto.

Optimization of a wet microalgal lipid extraction procedure for improved lipid recovery for biofuel and bioproduct production. 2015. Bioresource Technology **193,** 15–24. Sathish, A., Marlar, T. & Sims, R. C.

Polyhydroxybutyrate production using a wastewater microalgae based media. 2015. Rahman, A., Putman, R. J., Inan, K., Sal, F. A., Sathish, A., Smith T., Nielsen, C., Sims, R. C., and Miller, C. D. Journal of Algal Research, 8:95-98.

Optimization of wastewater microalgae saccharification using dilute acid hydrolysis for acetone, butanol, and ethanol fermentation. 2015. Castro, Y. A., Ellis, J. T., Miller, C. D., & Sims, R. C. Applied Energy, 140, 14-19.

Dissolved inorganic carbon enhanced growth, nutrient uptake, and lipid accumulation in wastewater grown microalgal biofilms. 2015. *Bioresource Technology, 180:7-15*. Kesaano, M., Gardner, R. D., Moll, K., Lauchnor, E., Gerlach, R., Peyton, B. M., & Sims, R. C. http://www.sciencedirect.com/science/article/pii/S0960852414018288s

Bioenergy from Wastewater-based Biomass. 2015. Medical & Biological Engineering & Computing (MBEC) Journal. Sims, R.C., R. Thompson, & J.L. Sims

Chitosan-graft-polydiallyldimethyl ammonium chloride for microalgae harvesting from wastewater. 2014. Desalination and Water Treatment: 1-7. Anthony, Renil J., and Ronald C. Sims. http://www.researchgate.net/publication/265848273

AFM resolves effects of ethambutol on nanomechanics and nanostructures of single dividing mycobacteria in real-time. 2014. 16:36, 19156 – 19164. Wu, Y., Sims, R.C., and Zhou. A.

Algal biofilm based technology for wastewater treatment. 2014. Algal Res. (5): 231 -240. Kesaano, M. & Sims, R. C. doi:10.1016/j.algal.2014.02.003. http://www.sciencedirect.com/science/article/pii/S221192641400023X

Direct measurement and characterization of active photosynthesis zones inside wastewater Remediating and biofuel producing microalgal biofilms. 2014. Bioresour. Technol. 156, 206–215. Bernstein, H. C. et al. http://www.sciencedirect.com/science/article/pii/S096085241400008X

Effects of wastewater microalgae harvesting methods on polyhydroxybutyrate production. 2014. Biores. Technol. 156:364-367. Rahman, A., Anthony, R. J., Sathish, A., Sims, R. C. & Miller, C. D. doi:10.1016/j.biortech.2014.01.034. http://www.sciencedirect.com/science/article/pii/S0960852414000595

Algae Biomass Based Media for Poly(3-hydroxybutyrate) (PHB) Production by Escherichia coli. 2014. J. Polymers Environ. 22:272-277. doi:10.1007/s10924-014-0647-x Rahman, A., R. Putman, R.C. Sims, and C. D. Miller.

An instrument design for non-contact detection of biomolecules and minerals on Mars using flourescence. 2014. Jour. Biological Engineering, 8, 16-22. doi: 10.1186/1754-1611-8-16. Sims, R.C., Smith, H., McKay, C., Duncan, A., Anderson, A., and Grossl, P.

Metagenome analysis of a methanogenic community within an algal fed anaerobic digester. 2014. Canadian Journal of Microbiology, 60:7, 431-435. Ellis, J.T., Sims, R.C., and Miller, C.D.

Microbial bioproducts from cheese whey through fermentation with wastewater sludge *Clostridium* isolates. 2014. Canadian Journal of Microbiology. 60(7): 431-435. Ellis, J.T., Sims, R.C., and Miller. C.D.

Effect of Moisture on In Situ Transesterification of Microalgae for Biodiesel Production. 2014. Journal of Chemical Technology & Biotechnology. 88(1):137-142. http://onlinelibrary.wiley.com/doi/10.1002/jctb. 4125/abstract. Sathish, A., B. Smith, & R.C. Sims.

Cationic Starch for Microalgae and Total Phosphorus Removal from Wastewater. 2013. J. Applied Polymer Science. doi: 10. 1002/app.39470. Anthony, R. & R.C. Sims.

Secretion of polyhydroxybutyrate in Escherichia coli using a synthetic biological engineering approach. 2013 J. Biol. Eng. 7, 24. Rahman, A., Linton, E., Hatch, A. D., Sims, R. C. & Miller, C. D.

Acetone, Butanol, and Ethanol Production from Wastewater Algae. 2012. Bioresource Technology 111:491-495. doi:10.1016/j.biortech.2012.02.002 [Ellis, J.T., N. Hengge, R.C. Sims, & C.D. Miller]

Biodiesel from Mixed Culture Algae via a Wet Lipid Extraction Procedure. 2012. Bioresource Technology doi:10.1016/j.biortech.2012.05.118. Sathish, A. and R.C. Sims

Translocation of green fluorescent protein by comparative analysis with multiple signal peptides. 2012. Biotechnology Journal, 7:5, 667-676. doi: doi: 10.1002/biot.201100158. Linton, E., Walsh, M.K., Sims, R.C., and Miller, C.D.

Monitoring microbial diversity of bioreactors using metagenomic approaches. 2012. In *Reprogramming Microbial Metabolic Pathways: Subcellular Biochemistry*. http://www.springer.com/ biomed/book/978-94-007-5054-8 X.,Wang, J., Chen, P. J., Quinn; United Kingdom, 2012; Volume 55. Ellis, J.T., R.C. Sims, and C.D. Miller

Investigating the Effectiveness of St John's Wort Herb as an Antimicrobial Agent against Mycobacteria. 2012. Phytotherapy Research, 26:9, 1327-1333. . doi/10.1002/ptr.3716. Mortensen, T., S. Shen, F Shen, M. K. Walsh, R.C. Sims, and C.D. Miller

Rotating Algael Biofilm Reactor and Spool Harvester for Wastewater Treatment with Biofuels By-Products. 2012. Biotech & Bioengg. 109: 1674-1684. Christenson, L. and R.C. Sims

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Production and Harvesting of Microalgae for Wastewater Treatment and Biofuels and Bioproducts. 2011. *Biotechnology Advances*. 29(6): 686-702. Christenson, L., and R.C. Sims

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Translocation of Green Fluorescent Protein by Comparative Analysis with Multiple Signal Peptides. 2011. Biotech Jour., 7(5): 667-676. doi: 10.1002/biot.201100158. Linton, E., M.K. Walsh, R.C. Sims, and C.D. Miiller.

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Guidance Manual for the Use of Prepared Bed Land Treatment as a Bioremedial Technology. Poster Session, *10th Annual Hazardous Waste Research Conference*, Great Plains-Rocky Mountain Hazardous Substance Research Center, U.S. Environmental Protection Agency, Manhattan, KS, May 23-24, 1995. (J.L. Sims, *, and A.L. Moss)

Evaluation of In Situ Bioremediation Associated with Natural Attenuation at A Gas Plant Waste Site. *In Situ and On-Site Bioreclamation*, Third International Symposium, Battelle, San Diego, CA, Apr 24-27, 1995. (J.S. Ginn, *, and I.P. Murarka)

Wood Preserving Waste-Contaminated Soil: Treatment and Toxicity. Poster Session, *In Situ and On-Site Bioreclamation*, Third International Symposium, Battelle, San Diego, CA, April 24-27, 1995. (S.G. Huling, D.F. Pope, J.E. Matthews, J.L. Sims, *, and D.L. Sorensen)

Technology Transfer at Universities. *Rewarding Technology Transfer and Outreach at Universities: Overcoming Institutional Barriers*, Technology Transfer Meeting, U.S. EPA Hazardous Substance Research Centers, Sea Island, GA, November 20-22, 1994. (*) (**Invited Speaker**)

Bioremediation of Soils and Aquifer Materials Contaminated with Petroleum Products Containing Carcinogenic and Non-Carcinogenic Polycyclic Aromatic Hydrocarbons. *Hawai'i First National Technologies Conference: Remediation and Environmental Monitoring*, Waikiki, Hawaii, September 12-16, 1995. (*) (**Invited Speaker**)

Interactions of Pentachlorophenol with Manganese Oxide. *9th Annual Conference on Hazardous Waste Remediation* Great Plains-Rocky Mountain Hazardous Substance Research Center, U.S. Environmental Protection Agency, Bozeman, MT, June 8-10, 1994. (A.C. Cramer, J.E. McLean, and *)

Pentachlorophenol Interactions with Aquifer Solids. *9th Annual Conference on Hazardous Waste Remediation*, Great Plains-Rocky Mountain Hazardous Substance Research Center, U.S. Environmental Protection Agency, Bozeman, MT, June 8-10, 1994. (R. Petrie and *)

Evaluation of Bioremediation of Creosote-Contaminated Ground Water. *Annual Groundwater Research Symposium*, Robert S. Kerr Environmental Research Laboratory, U.SEPA, Oklahoma City, OK, June 1-3, 1994. (*, J.L. Sims, D.L Sorensen, and M.W. Kemblowski)

Land Treatment Unit Performance Evaluation at the Champion International Superfund Site, Libby, Montana. Poster session presented at the *Annual Groundwater Research Symposium*, Robert S. Kerr Environmental Research Laboratory, U.S.EPA , Oklahoma City, OK, June 1-13, 1994 . (D.L Sorensen, *, and J.L. Sims)

Field Scale Evaluation of Grass-Enhanced Bioremediation of PAH Contaminated Soils. *20th Annual Risk Reduction Engineering Laboratory Research Symposium*, U.S. Environmental Protection Agency, Cincinnati, OH, April, 1994. (D.L. Sorensen, *, and X. Qiu)

Evaluation of Biotransformation Products Associated with Manufactured Gas Plant Waste. *Special Symposium on Emerging Technologies in Hazardous Waste Management VI*, Division of Industrial and Engineering Chemistry, American Chemical Society, Atlanta, GA, September 19-21, 1994. (J.S. Ginn and *)

Bioremediation of Contaminated Soil. Video (41 minutes). Office of Solid Waste, U.S. Environmental Protection Agency, Washington, DC, November, 1993. (*)

Chemical Mass Balance Approach for Estimating Fate and Transport of Polycyclic Aromatic Metabolites in the Subsurface Environment. *14th International Symposium on Polycyclic Aromatic Compound*s, International Society for Polycyclic Aromatic Compounds (ISPAC), Lake of the Ozarks, MO, September 8-11, 1993. (J.S. Ginn, W.J. Doucette, and *)

Evaluation of Biotransformation Products of PAH Metabolism in a Creosote-Contaminated Aquifer. *Special Symposium on Emerging Technologies in Hazardous Waste Management V*, Division of Industrial and Engineering Chemistry, American Chemical Society, Atlanta, GA, September 27-29, 1993. (J.S. Ginn and *)

Biotreatment: Prepared Bed and Compost Systems. *Proven and Emerging Techniques in Bioremediation*, American Society of Microbiology Workshop Program, 92nd ASM General Meeting, New Orleans, LA, May 30, 1992. (*) (Invited Speaker)

Contaminated Site Remediation: Insights for Professionals and Managers. *Seminar on the Environment*, Environmental Research and Studies Centre, University of Alberta, Edmonton, Alberta, Canada, May 29, 1992. (*) (Invited Speaker)

Contaminated Site Remediation and Industrial Site Decommissioning. *Conference on Industrial and Hazardous Waste Management*, The Banff Centre for Management, Banff, Alberta, Canada, April 15-19, 1993, May 10-15, 1992, May 5-11, 1991, and May 27-June 2, 1990. (*) (Invited Speaker)

Conceptual Approach for Characterizing Problems at Hazardous Waste Sites. Video (48 minutes). Office of Solid Waste, U.S. Environmental Protection Agency, Washington, DC, March, 1992. (*)

Effect of Oxygen Tension on the Degradation of High Molecular-Weight Polycyclic Aromatic Hydrocarbons in Soil. *Second Annual National R & D Conference on the Control of Hazardous*

Materials. Hazardous Materials Control Research Institute, San Francisco, CA, February 4-6, 1992. (H.S. Park and *)

Mass Balance Approach for Remedy Selection at Corrective Action Sites. U.S. Environmental Protection Agency *First Annual Corrective Action Symposium*, San Francisco, CA, June 3-5, 1991. (*) (Invited Speaker)

Habitat Conditions Affecting Bioventing Processes. *Symposium on Soil Venting*, U.S. Environmental Protection Agency, Houston, TX, April 29-May 1, 1991. (D.L. Sorensen and *) (Invited Speakers)

In Situ Bioremediation of Dense Non Aqueous Phase Liquids (DNAPLs). U.S. Environmental Protection Agency *Workshop on DNAPLs*, Dallas, Texas, April 16-18, 1991. (*) (Invited Speaker)

Characterization of Vadose Zone Processes as Part of Remediation Technology Evaluation and Selection at Hazardous Waste Sites. *National Meeting of the Association of Engineering Geologists*, Pittsburgh, PA, Oct. 1-5, 1990. (*) (Invited Speaker)

Remediation Considerations for Carcinogenic Aromatic Hydrocarbon Contaminated Soil Based on Interphase Transfer and Chemical Alternation Analysis Using Integrated Chemical and Biological Assays. Poster Session. *Society of Environmental Toxicology and Chemistry (SETAC) 10th Annual Meeting*, Toronto, Canada, Nov., 1989. (C. Abbott and *)

Bioremediation: Contaminated Soil. Robert S. Kerr Environmental Research Laboratory Technical Assistance Program to U.S. EPA Region VIII: *Oily Waste- Fate, Transport, Site Characterization, and Remediation*, Denver, CO, May 17-18,1989. (*) (Invited Speaker)

Evaluation of the Collector Efficiency and Impediment Modulus for Slow Rate Sand Filtration. *Intermountain American Water Works Association Annual Meeting*, Sun Valley, ID, September 21-23, 1988. (S. Hirschi and Ronald Sims)

Status of Land Treatability Studies and Closures in the United States. *Environment Canada Annual Meeting on Land Treatability of Oily Wastes*, Calgary Convention Centre, Calgary, Alberta, Canada, March 22, 1988. (Ronald Sims and J.L. Sims) (Invited Speakers)

Evaluation and Recommendations for Increasing Efficiency of the Water Treatment System for the Town of Salmon, Idaho. *Intermountain American Water Works Association Annual Meeting*, Park City, UT, 1987. (S. Hirschi and *)

Background Concentrations and Fate of Organic Chemicals in Soil-Plant Systems for Risk Assessment. *Annual Conf., American Institute of Chemical Engineers*, Boston, MA, 1986. (*) (Invited Speaker)

Clinoptilolite-Amended Slow Rate Sand Filtration: Performance and Economics. *Intermountain American Water Works Association Annual Meeting*, Pocatello, ID, Sept., 1985. (D.R. McNair and *)

Mathematical Modeling of PAH Compounds for Use in Groundwater Protection Strategies. *Western Annual Meeting of the American Geophysical Union*, Boulder, CO, July, 1986. (B.D. Symons & *)

Slow Rate Sand Filtration With and Without Zeolite: A Comparison of Water Treatment Efficiency and Filtration Economics. *Intermountain American Water Works Association Annual Meeting*, Jackson, WY, Aug. 29-31, 1984. (G.P. Foreman and *)

Biodegradation of Polynuclear Aromatic Compounds in Soil Systems. *Agronomy Abstracts* 76:36. 1984 Annual Meeting of the American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America, Las Vegas, NV, Nov. 25-30, 1984 (Ronald C. Sims and J.L. Sims)

Evaluation of Fill Materials for Use in the Mound System of On-site Waste Disposal. *Agronomy Abstracts* 76:36. Annual Meeting of the American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America, Las Vegas, NV, Nov. 25-30, 1984 (J.L. Sims, R.A. Watts, and *)

Immobilization of Polynuclear Aromatic Compounds in Soil Systems. *Agronomy Abstracts* 76:31. 1984 Annual Meeting of the American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America, Las Vegas, NV, Nov. 25-30, 1984. (R.J. Mahmood, *, and J.L. Sims)

Protection of Groundwater by Immobilization of Hazardous Metals Associated with Industrial Wastes in Soil Systems. *Agronomy Abstracts* 76:30. 1984 Annual Meeting of the American Crop Society, Crop Science Society of America, and Soil Science Society of America, Las Vegas, NV, Nov. 25-30, 1984. (J.E. McLean, *, I-fu Shen, and J.L. Sims)

Land Treatment of Oil Shale Wastewaters. *Utah Water Pollution Control Association Annual Meeting*, St. George, UT, 1984. (D. E. Umfleet and *)

Reclamation of PAH Contaminated Soils. *1984 Annual Specialty Conference in Environmental Engineering*, American Society of Civil Engineers, Los Angeles, CA , 1984. (D.E. Umfleet, *, and A. Pano)

In Situ Soil Treatment of Polynuclear Aromatic Compounds. *185th American Chemical Society National Meeting*, *Division of Environmental Chemistry*, Seattle, WA, Mar. 20-25, 1983. (*, M.R. Overcash, and C.M. Sparacino)

Applications of Clinoptilolite in Biological Nitrification Systems. *46th Annual Water Pollution Control Federation Conference*, Cleveland, OH, 1973. (*, L.W. Little, and J.C. Brown)

Dissertation and Theses of Ronald C. Sims:

PhD *Land Application Design Criteria for Recalcitrant and Toxic Organic Compounds in Fossil Fuel Wastes*. Department of Biological and Agricultural Engineering, North Carolina State University, Raleigh, NC, 1982. (M.R. Overcash, Major Professor)

MS *Engineering Design for Removal of Toxic Levels of Ammonium from Dworshak National Fish Hatchery Reuse Water*. Department of Civil and Environmental Engineering, Washington State University, Pullman, WA, 1977. (E. Hindin, Major Professor)

MS *Enhanced Nitrification by Addition of the Ion Exchange Resin, Clinoptilolite, to Tertiary Activated Sludge Units*. School of Global Public Health, Department of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill, Chapel Hill, NC, 1972. (L.W. Little, Major Professor)

Invited Speaker:

2024 Microalgae biofilm engineering for application to agriculture food production. 2024. International Institute for Sustainable Development. Ontario, Canada. Sept. 3-6. J. Watkins and R. C. Sims

2023 Synergistic Wastewater Integration of Municipal Wastewater with Algae. 2023. U.S. DOE Annual Meeting. Denver, CO. April 3.

2018 Algae Blooms Conversion to Bio-Fuels. 2018. One Health Symposium, SLC, UT (Nov.)

2016 Algae biotechnology for wastewater treatment. 10th Annual Algae Biomass Summit, Algae Biomass Organization. 2016. Tucson, AZ, October 23-26. Ronald Sims

2016 Algae-based biotechnologies with cyanobacteria: wastewater remediation and public health issues. Utah Environmental Health Association. Brigham City, UT, September 21-23.

2016 Sustainable bioenergy from produced water. Utah Governor's Energy Development Summit. Salt Lake City, UT. May 25.

2015 Upflow Anaerobic Sludge Blanket (UASB) and algae system integration. Wageningen University and Research Center, April 20-24.

2013 Korean Society of Biotechnology and Bioengineering (KSBB). Wastewater-based algae biotechnology for nutrient recovery and bioproducts using biofilms, Seoul, South Korea

2013 Wastewater Remediation: Nutrient Management for Value Bioproducts using the Rotating Algae Biofilm Reactor (RABR). National Research Council, Canada, Vancouver, February 2.

2012 Biofuels and Renewable Chemicals from Wastewater Streams. CRIBIQ, Quebec, Canada, October 2.

2006. Biodegradation Rate of PAHs and Mineral Oil in Sediments on a Landfarm. Battelle On-Site and In Situ Bioremediation Conference, Baltimore, MD (J. Marmsen, W.. Rulkens, H. Zweers, and R.C. Sims)

2006 One Model of Biological Engineering Education at a Land Grant University Based on Directed Evolution. Institute of Biological Engineering, **(R.C. Sims * T. Taylor presenting))** Arizonaz State U., Tucson, AZ.(T. Taylor, D. Britt, M. McConkie, P. Schreuders, and R.S. Sims)

2005. Management of Agroecosystems for Persistent Pollutants. by Ronald C. Sims at the International Workshop, Institute of Soil and Agriculture, Pulawy, Poland, March 10-12.

2005 Petroleum and Biofuel Oxygenates-Monitored Natural Attenuation. R. C. Sims, A. Swank, and M. Greenwood. Presented at the DOE/INRA Subsurface Science Symposium, Big Sky, Montana, Sept. 19-21.

2005 Biodegradation and Sorption of TBA and MTBE in Near-Surface Sediments at a Ful Scale Site in Wyoming. M. Greenwood, A. Swank, J.E. McLean, and R. C. Sims. Society of Environmental Toxicology and Chemistry (SETAC), San Diego, CA, November 13-18.

2004 Fugacity Framework 2.0: Calculator and Training Applications for Site Assessment and Rehabilitation**.** Second International Conference on Prevention, Assessment, Rehabilitation and Development of Brownfield Sites. Siena, Italy. June 14-16, (R.C. Sims, J.L. Sims, M. McConkie, W.J. Grenney, and J.K Nieman).

2002 Field Performance" Bioremediation of PAH Contaminated Sediments. Society of Environmental Toxicology and Chemistry Annual Conference, Salt Lake City, UT, November 17-19, (R.C. Sims, J.L. Sims, and D.L. Sorensen)

2002 Sediment MTBE Interactions at a Full Scale Site in Montana: Natural Attenuation and Toxicity. 18th International Conference on Contaminated Soils, Sediments, and Water. University of Massachusetts, Amherst, October 21-24, , (R. C. Sims and A. Swank)

2002 Management Options and Environmental Sustainability for Subsurface Remediation. **Invited.** DOE/Inland Northwest Research Alliance (INRA) 2nd Annual Symposium. Boise, ID, October 13-16, [Ronald C. Sims].

2002 Fugacity Framework: web access and implementation for site assessment and rehabilitation. **Invited** First International Conference on Brownfield Sites Assessment, Rehabilitation,& Development. Cadiz, Spain, September 1-4, (*, J.L. Sims, S.A. Gibbons, M.R. Baugh, M. McConkie, J.K. Nieman, and W.J. Grenney).

2002 Soil Treatment of Chemical Industry Residues. Kazan State University, Tatarstan, Russia, July 1-5. (R.C. Sims).

2002 Sediment Environmental Factors Affecting Natural Attenuation/Bioremediation of MTBE at a Full-Scale Site. 12th Annual AEHS Conference, San Diego, CA, March, (A. Swank and R.C. Sims)

2001 Application of Microbial Toxicity Testing to MTBE Contaminated Site in Ronan, MT. 11th Annual Meeting of the Association for the Environmental Health of Soils (AEHS), San Diego, CA, March. (A. Swank and R.C. Sims)

1998 **Plenary Speaker**, U.S. EPA Regions 7&8 Hazardous Substance Research Center 13th Annual Meeting, May 18-21.

1988 Bioremediation: Contaminated Aquifer Material - Ground Water. Robert S. Kerr Environmental Research Laboratory Technical Assistance Program to U.S. Environmental Protection Agency Region VIII: *Oily Waste- Fate, Transport, Site Characterization, and Remediation*, Denver, CO, May 17-18(Ronald Sims) (

International Activities:

2024 **Invited Speaker.** Microalgae biofilm engineering for application to agriculture food production. International Institute for Sustainable Development. Ontario, \ Canada. Sept. 3-6. J. Watkins and R. C. Sims

2007-2014 **Invited Speaker**, Environmental Conferences at Wageningen University, The Netherlands, topic: Biofuels Research at USU- Biodiesel from algae.

2003-2005 **Organizing Committee** Member, International Committee on Remediation for Sustainable Agro-ecosystems Workshop. with The Netherlands and Poland, **sponsored by European Union.**

2003 **PAH/Land Treatment Expert to Niznikamsk, Russia**, collaboration with Wageningen University & Alterra (The Netherlands) for Petrochemical Waste Treatment using Land Application.

1990-2005 **Co-Chair** (with drs. Joop Harmsen, The Netherlands) of the Landfarm Session of the biannual International In Situ and On-Site Bioremediation Symposium.

1990-1996 **I** **Invited Speaker, Technical Expert, and Project Reviewer.** Ontario and Alberta, Canada. Present U.S. remediation program (RCRA and CERCLA) for soil and ground water. Review, plan, and evaluate urban remediation technologies and strategies.

1995-2000 **Invited Speaker and Technical Expert**. Perth and Sydney Australia. Member of a U.S. EPA team to develop issues and options for remediation of petroleum impacted sites with research organizations (CISRO) and national engineering firms.

2000 **Invited Speaker**. Czech Republic. Presentation: "Landfarming Framework for Sustainable Restoration of Soil." NATO Conference. Invited by U.S. EPA.

2002 **Invited Speaker and Technical Expert**. Tatarstan, Russia. Invitation and collaboration - Drs. Joop Harmsen, Wageningen University, The Netherlands. Presentations, assessment, and development of treatment alternatives for chemical industry residue assimilation in a landfarm environment. Collaborative research development with Kazan State University, Russia, and Wageningen University, The Netherlands.

2002 **Invited Speaker**. First International Conference on Brownfield Sites. Spain. Collaboration with International Brownfields Committee for international cooperation and exchange of technical information.

2002 **Invited Researcher**. Wageningen University, The Netherlands. Develop research and academic training collaboration with Wageningen University in the areas of environmental engineering technologies and remediation of soils and sediments.

Awards and Honors

Outstanding Undergraduate Mentor at Utah State University
Huntsman Corporation Endowed Professorship at Utah State University
D. Wynn Thorne Career Research Award, Utah State University
Utah Governors Medal for Science and Technology
Elected to College of Fellows of the American Institute of Biomedical and Biological Engineering
Elected as Fellow of the Institute of Biological Engineering
Outstanding Undergraduate Research Mentor, College of Engineering, USU
Co-Advisor for Gold Medal Award for student team at the International Genetically Engineered Machine (iGEM) Competition at MIT, MA. Topic: Secretion-Based System for Microbially Produced Polyhydroxyalkanoates (Bioplastics)
Co-Advisor for Bronze Medal Award for student team at the International Genetically Engineered Machine (iGEM) Competition at MIT, MA. Topic: Biobrick Assembly for Microbially Produced Polyhydroxyalkanoates (Bioplastics)
Utah Department of Environmental Quality, Utah Water Quality Board Recognition for service to the state of Utah Water Quality Board
American Water Resources Association, Utah Chapter Recognition
Major Advisor for National Winner (Kevin Hall) for Posters on the Hill (Washington, DC)
Excellence in Research recognition by Union Carbide Corporation for 5 consecutive years
Karen Morehouse U.S. EPA Best Research Paper Award (U.S. EPA)
Air & Waste Management Association Recognition (Critical Review Committee)
Recognition for Contributions as Visiting Engineer (U.S. EPA Robert S. Kerr Lab)
Outstanding Researcher Award, College of Engineering at USU
Biological Engineering Dep't Outstanding Undergraduate Research Mentor
College of Engineering Outstanding Undergraduate Research Mentor
American Water Works Association Certificate of Recognition for serving as Major Advisor to 1985 National Academic Achievement Award Recipient for Outstanding Research in the Water Treatment Field
Nominee for Outstanding Dissertation, North Carolina State University

Certificate of Recognition for Leadership (as Director) of the International Program in Environmental Aspects of Industrial Development, sponsored by the United Nations Industrial Development Organization (UNIDO) and the U.S. State Department
Outstanding Graduate Student, Department of Environmental Sciences and Engineering, Univ. North Carolina Global School of Public Health, Chapel Hill, NC
Alpha Epsilon (Agricultural Engineering Honorary Society
Gamma Sigma Delta (Agriculture Honorary Society)
Phi Kappa Phi

Professional Service to Organizations:

American Institute for Medical and Biological Engineering	2020-present
Northeast Biotechnology Center & Consortium (Board Member)	2014-2021
Logan City Water & Wastewater Board (Appointed by Mayor)	2008-2024
Algae Biomass Organization (ABO) 2017 Regional Planning Chair	2016-2017
Institute of Biological Engineering Regional Planning Chair	2016-2017
Institute of Biological Engineering (President elect, President, Past Pres)	2011-2013
DOE Inland Northwest Research Alliance (USU Representative)	1997-2000
State of Utah Water Quality Board (Appointed by Governor)	1996-2007
U.S. EPA Hazardous Substance Research Center Region 8	1990-2000
Whittier Community Center Logan, UT (Board Member)	1993-present
Water Environmental Association of Utah (USU Representative) Student Presentation Section	1983-1986

Instructor for U.S. Environmental Protection Agency Professional Staff: 1988-2002

RCRA-Corrective Action-Performance-Based Management [1999-2001]. [U.S.EPA, RCRA-Corrective Action, Washington, D.C. Office]

Innovative Treatment Technologies for Hazardous Waste [1998-2000]. [U.S. EPA, National Risk Management Research Laboratory, Cincinnati, OH]

Natural Attenuation of Contaminated Soils and Ground Water [1996-2000]. [U.S. EPA, National Risk Management Research Laboratory, Ada, OK]

Bioremediation of Hazardous Waste Sites: Practical Approaches to Implementation (1993, 1996) (Center for Environmental Research Information, Cincinnati, OH)

Stabilization Technologies for RCRA Corrective Actions (1991-1992) (Center for Environmental Research Information, Cincinnati, OH)

Bioremediation-Basic Principles, Limitations, and Practical Applications (1991) (Robert S. Kerr Environmental Research Laboratory, Ada, OK)

RCRA Facility Investigation/Corrective Measures Study Training Program for Contaminated Soils and Ground Water (1990-1991) (Office of Solid Waste, Washington, DC)

Site Characterization for Subsurface Remediation (1989-1990) (U.S. EPA Robert S. Kerr Environmental Research Laboratory, Ada, OK)

Remediation of Contaminated Soil - Fundamentals and Applications (1989-1998) (Robert S. Kerr Environmental Research Laboratory, Ada, OK, through Superfund University Training Courses (SUTI), Rice University, Houston, TX)

Bioremediation of Contaminated Soils (1988 - 1989) (EPA Biosystems Committee, Cincinnati, OH)

Basic Ground Water Investigations - Vadose Zone Monitoring and Remedial Technologies (1988-2000) (Robert S. Kerr Environmental Research Laboratory, Ada, OK, through Superfund University Training Courses (SUTI), Rice University, Houston, TX)

Transport and Fate of Contaminants in the Subsurface - Soil Remediation and Treatment Train Approach (1990-1993) (Robert S. Kerr Environmental Research Laboratory, Ada, OK, through Superfund University Training Courses (SUTI), Rice University, Houston, TX)

PhD Major Advisor or Co-Advisor of Graduate Students Graduated: 19

Iegor Pererva, Biological Engineering, 2020 (Major Advisor)
Cole Peterson, Biological Engineering, 2020 (Co-Advisor)
Ana Lara Licon, Biological Engineering, 2019 (Co-Advisor)
Milchaeela Hugie, Biological Engineering, 2019 (Co-Advisor)
Maureen Kesaano, Biological Engineering, May 2015
Asif Rahman, Biological Engineering, 2015 (Co-Advisor)
Yousef Soboh, Biological Engineering, 2015 (Major Advisor)
Renil Anthony, Biological Engineering, 2014 (Major Advisor)
Joshua Ellis, Biological Engineering, 2014 (Co-Advisor)
Daniel Dye, Biological Engineering (Co-Advisor), 2012
Yanna Liang, Environmental Engineering, 2010 (Major Advisor)
Karl Nieman, Environmental Engineering, 2008 (Major Advisor)
Jon Ginn, Environmental Engineering, 1997 (Major Advisor)
Gene Whelan, Environmental Engineering, 1992 (Major Advisor)
Robert Petrie, Environmental Engineering, 1996 Major Advisor)
Carolyn Abbott, Environmental Engineering, 1993 (Major Advisor)
Kapsong Park, Environmental Engineering, 1987 (Major Advisor)
Hun Seak Park, Environmental Engineering, 1986 (Major Advisor)
Ramzi Mahmood, Environmental Engineering, 1987 (Major Advisor)

MS Major Advisor of Students Graduated: 40

Jacob Watkins, Biological Engineering, 2024 (Major Advisor)
Jaden Storrer, Biological Engineering, 2024 (Co-Advisor)
Joshua Wintch, Biological Engineering, 2024 (Major Advisor)
Clayton Lords, Biological Engineering, 2024 (Major Advisor)
Claudine Mock, Biological Engineering, 2024 (Major Advisor)
Dallin Chugg, Biological Engineering, 2024 (Major Advisor)
Peter Jeppesen, Biological Engineering, 2024 (Major Advisor)
Kyle Hillman, Biological Engineering, 2020
Benjamin Peterson, Biological Engineering, 2018
Jonathan Wood, Biological Engineering, 2017
Alan Hodges, Biological Engineering, September 2016

Jason Peterson, Biological Engineering, September 2016
Zachary Fica, Biological Engineering, September 2016
Terence Smith, Biological Engineering, All but thesis
Yessica Castro, Biological Engineering, 2014
Ashik Sathish, Biological Engineering 2014
Andrew Elder, Biological Engineering 2014
Paul Woolsey, Biological Engineering 2011
Logan Christensen, Biological Engineering, 2011
Ashton Young, Biological Engineering, 20111
Misheka Wilson, Biological Engineering, 2011
Elizabeth Linton, Biological Engineering, 2010
Karl Nieman, Environmental Engineering, 2006
Kevimn Hall, Environmental Engineering, 2003
Aaron Swank, Environmental Engineering, 2002
Mark Greenwood, Environmental Engineering, 1999
Justin Hurst, Environmental Engineering, 1995
P. Chad Ellis, Environmental Engineering, 1995
Allan Cooley, Environmental Engineering, 1994
Steven Hansen, Environmental Engineering, 1992
Mervin Coover, Environmental Engineering, 1990
Brian Symons, Environmental Engineering, 1990
John Keck, Environmental Engineering, 1989
Shane Hirschi, Environmental Engineering, 1987
Daniel McNair, Environmental Engineering, 1987
Daniel Umfleet, Environmental Engineering, 1987
James Martin, Environmental Engineering, 1986
Linda McConnell, Environmental Engineering, 1985
Gordon Forman, Environmental Engineering, 1984
Lloyd Slezak, Environmental Engineering, 1984

Consulting:

2007-2012	Logan City Environmental Department
2005-2006	Petro-Chemical industry (Niezhnikamskneftekhim), Tartarstan, Russia
2001-2003	U.S. Army Corps of Engineers, Hazardous/Toxic Waste Management
1999-2001	HAZMED Corporation, Lanham, MD
1991-1992	City of Toronto Housing Department, Toronto, Canada
1990-1991	NUS Corporation, Washington, D.C.
1989-1999	Consultant to the U.S. Environmental Protection Agency
1989-1998	Eastern Research Group, Inc., Arlington, MA
1989-1990	PEI Associates, Inc., Cincinnati, OH
1987-1990	Peer Consultants, Dayton, OH
1987	International Technology Corp., Groundwater Division, Princeton, NJ
1986-1988	Morton Thiokol, Inc., Wasatch Division, UT
1986-1988	Remediation Technologies, Seattle, WA

1986- 2002 Dynamac Corporation, Rockville, MD and Ada, OK Office
1985 CH2M Hill, Corvallis, OR
1983-1986 Environmental Research and Technology (ERT), Inc., Fort Collins, CO
1983-1986 International Minerals and Chemical Corporation, Terre Haute, IN
1983-1986 Engineering Science, Inc., Denver, CO
1983-1990 Thunder Basin Coal Company, Wright, WY

Patents:

Methods for Harvesting and Processing Biomass. U.S. Patent Number: 20140011246 A1. Date of Patent: January, 2014. Inventors: Charles Miller, Joshua Ellis, Renil John Anthony, Ashik Sathish, and Ronald C. Sims. **Abstract:** A system and method for harvesting and processing algae: harvesting algae by mechanical or chemical system and processing harvested algae to produce biodiesel, bioplastics, biogas, or fertilizer.

Methods of Bioplastic Production. U.S. Patent Number: 20130344550 A1. Date of Patent: December 26, 2013. Inventors: Charles Miller, Asif Rahman, Ronald Sims, Ashik Sathish, and Renil Anthony. **Abstract:** A method of producing bioplastics from algae, the method including processing algae to yield an aqueous phase containing glycerol, and fermenting the aqueous phase with a bioplastic-producing bacteria to yield bioplastics. http://www.google.com.gi/patents/US20130344550

Methods for Producing Acetone, Butanol, and Ethanol. U.S. Patent Number: 13/663,002. Date of Patent: October 2012. Inventors: Joshua Ellis, Charles Miller, and Ronald C. Sims. **Abstract:** Acetone, butanol, and ethanol (ABE) fermentation by *Clostridium saccharoperbutylacetonicum* N1-4 using wastewater algae biomass as a carbon source.

Process for Remediating Soils Contaminated with Polycyclic Aromatic Hydrocarbons and Chlorinated Phenols. U.S. Patent Number: 6,069,292. Date of Patent: May 30, 2000. Inventors: Ishwar P. Murarka, Benjamin J. Mason, and Ronald C. Sims. **Abstract:** Photons from sunlight are utilized to pretreat contaminated soils through photooxidation of toxic chemicals that render them bioavailable to microbial transformation and detoxification.