UPAL GHOSH

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Dr. Upal Ghosh is a professor in the department of Chemical, Biochemical, and Environmental Engineering at the University of Maryland Baltimore County. He has an undergraduate degree in Chemical Engineering and MS and Ph.D. degrees in Environmental Engineering. His group performs research in environmental engineering and science with a focus on the fate, effects, and remediation of toxic pollutants in the environment. They use multidisciplinary tools to investigate exposure and bioavailability of organic and metal pollutants to organisms and apply the new understanding to develop novel approaches for risk assessment and remediation. His research has contributed to the development and transition of novel sediment remediation technologies based on altering sediment geochemistry and enhancing biological degradation. Dr. Ghosh has also led the development of monitoring tools for pollutant bioavailability, especially work on passive sampling techniques for measuring freely dissolved concentrations in sediment porewater. His work has been published in the leading journals in the field and the technology development has led to several US patents. His research contributions have been recognized through multiple awards including the University System of Maryland Regents award for Excellence in Scholarship, Research, and Creative Activity in 2016. He is an Associated Editor of the journal Environmental Toxicology and Chemistry. Dr. Ghosh also is the co-founder of two startup companies that are transitioning emerging sediment remediation technologies to the field.

**APPOINTMENTS**

* 7/12- present **Professor**, 7/07- 6/12 **Associate Professor**, 11/02-6/07 **Assistant Professor**, and **Graduate Program Director** (6/02-8/13). University of Maryland Baltimore County. Also, faculty member in the Marine Estuarine Env. Sciences Graduate Program, University of Maryland, and Faculty Fellow at the Center for Urban and Environmental Research and Education, UMBC.
* 1/15 – present. **Associate Editor**, Environmental Toxicology and Chemistry journal. Society of Environmental Toxicology and Chemistry.
* 1/09 – present. **President and co-founder**, Sediment Solutions (Startup company established in 2009 specializing in in-situ sediment remediation: [www.sedimite.com](http://www.sedimite.com)).
* 12/17 – present. **Secretary and co-founder**. RemBac. (Startup company established in 2017 specializing in sediment bioremediation. [www.rembac.com](http://www.rembac.com) ).
* 5/00-10/02 **Engineering Research Associate and Lecturer.** Stanford University, Dept. of Civil and Environmental Engineering. Responsible for writing research proposals, managing and conducting research projects, teaching a graduate course, and mentoring graduate students.
* 1/98 - 6/99 **Post Doctoral Associate;** 7/99 - 4/00 **Research Faculty**, Carnegie Mellon University, Department of Civil and Environmental Engineering. Responsible for writing research proposals, managing and conducting research projects, and mentoring graduate students.
* 8**/**93 - 12/97, 9/90 - 8/92.**Research & Teaching Assistant.** State University of New York at Buffalo.
* 12/92 - 7/93, 8/89- 8/90. **Visiting Fellow.** Energy and Environment Policy Research Group, Indira Gandhi Institute of Development Research, Bombay, India. Worked on research projects funded by the United Nations Conference on Trade and Development involving impacts of international trade on environment and demand-side management of electric power use.

**EDUCATION**

* Ph.D. 1998 State University of New York at Buffalo, Civil and Environmental Engineering.
* M.S. 1993 State University of New York at Buffalo, Civil and Environmental Engineering.
* B.Tech. 1989 Indian Institute of Technology, Bombay, India, Chemical Engineering.

**AWARDS AND HONORS**

1. Entrepreneur of the Year Award, UMBC 2019.
2. Golden Jubilee Visiting Fellow, 2017-2018. Institute of Chemical Technology, Mumbai, India.
3. University System of Maryland Regents Award for Excellence in Scholarship, Research, and Creative Activity. 2016
4. Distinguished Service Award, Association of Environmental Engineering and Science Professors. 2015
5. Excellence in Environmental Engineering 2015 Honor Award for University Research, American Academy of Environmental Engineers and Scientists.
6. Visiting Professor, State Key Laboratory of Urban Water Resource and Environment, Harbin Institute of Technology, China, 2011-2014.
7. Best Poster Award, Gordon Research Conference, Environmental Sciences: Water, June 25-30, 2000.
8. 1999 Cleanup Project of the Year Awardee with other collaborators, Strategic Environmental Research and Development Program (DoD).
9. FTIR microspectroscopy research on sediment organic matter was selected as a scientific highlight paper for the National Synchrotron Light Source 1999 Annual Report, Brookhaven National Lab.
10. Most Creative Design Award, 1992 National Environmental Engineering Design Contest, Waste-management Education and Research Consortium, New Mexico State University, NM.
11. Larsen & Toubro Co. undergraduate chemical engineering scholarship.

**STUDENT/POST DOC AWARDS:**

1. Mandar Bokare (Ph.D. student), Graduate Student Award in Environmental Chemistry from the Division for Environmental Chemistry (ENVR) of the American Chemical Society (ACS)2020.
2. Mandar Bokare (Ph.D. student), Honorable Mentions at 2019 AAAS Student E-poster Competition in the Environment and Ecology category.
3. Mandar Bokare (Ph.D. student) 1st place, Geosyntec 2019 Sediments Student Paper Competition.
4. Trevor Needham (Ph.D. student), Best Student Paper Award at the Battelle International Conference on Remediation and Management of Contaminated Sediments, January, 2019.
5. Jada Dammond (undergraduate student), Best Undergraduate Platform Presentation at the Society of Environmental Toxicology and Chemistry, North America Annual Meeting, Nov, 2018.
6. Trevor Needham (Ph.D. student) 1st place Student Platform Presentation. Annual Meeting of the Chesapeake Potomac Regional Chapter (CPRC) of the Society of Environmental Toxicology and Chemistry (SETAC) 2018.
7. Mandar Bokare (Ph.D. student) 2nd place Student Platform Presentation. Annual Meeting of the Chesapeake Potomac Regional Chapter (CPRC) of the Society of Environmental Toxicology and Chemistry (SETAC) 2018.
8. James Sanders (Ph.D. student), Best student poster award, *Society of Environmental Toxicology and Chemistry, Hudson Delaware Chapter meeting*, April 2017.
9. Huan Xia (Ph.D. student), Best student paper award, *Battelle International Conference on Remediation and Management of Contaminated Sediments*, Orlando, FL, 2017.
10. James Sanders (Ph.D. student), 8th *Annual Geosyntec Student Paper Competition*, 2nd place, 2017
11. Mehregan Jalalizadeh (Ph.D. student) 8th *Annual Geosyntec Student Paper Competition*, 3rd place, 2017.
12. James Sanders (Ph.D. student), Second Place *Environmental Sciences and Engineering Student Poster, Annual Meeting of the Superfund Research Program, NIEHS*.2016
13. Hilda Fadaei (Ph.D. student), Best poster award, *Society of Environmental Toxicology and Chemistry, Chesapeake Potomac Regional Chapter*, Virtual Poster Contest 2016
14. Hilda Fadaei (Ph.D. student), Student Travel Award, *Society of Environmental Toxicology and Chemistry, Chesapeake Potomac Regional Chapter* 2016.
15. James Sanders (Ph.D. student), Second Place Poster, Foster (Sonny) Mayer Doctoral Presentation Awards, 7th SETAC World Congress/SETAC North America 37th Annual Meeting 2016.
16. James Sanders (Ph.D. student), Most Popular Poster, *Society of Environmental Toxicology and Chemistry, Chesapeake Potomac Regional Chapter*, Virtual Poster Contest 2016
17. James Sanders (Ph.D. student), Student Travel Award, 7th SETAC World Congress/SETAC North America 37th Annual Meeting 2016
18. Mehregan Jalalizadeh, 1st place student poster award, SETAC Hudson Delaware chapter meeting, 2016.
19. Hilda Fadaei (Ph.D. student) 2nd place Student presentation award, SETAC North America 36th Annual Meeting, Salt Lake City, UT 2015.
20. Hilda Fadaei (Ph.D. student), Student Travel Award from *Society of Environmental Toxicology and Chemistry, Chesapeake Potomac Regional Chapter*, North America 36th Annual Meeting, Salt Lake City, UT - 2015
21. Huan Xia (Ph.D. student), Student Travel Award from *Society of Environmental Toxicology and Chemistry, Chesapeake Potomac Regional Chapter*, 2014
22. Huan Xia (Ph.D. student), Student Travel Award from *Society of Environmental Toxicology and Chemistry, Chesapeake Potomac Regional Chapter*, 2013
23. Huan Xia (Ph.D. student), 1st place in student poster presentation, *Society of Environmental Toxicology and Chemistry, Chesapeake Potomac Regional Chapter Annual Meeting*, 2013
24. Hilda Fadaei (Ph.D. student), Student Travel Award from *Society of Environmental Toxicology and Chemistry, Chesapeake Potomac Regional Chapter*, North America 34th Annual Meeting, Nashville, TN - 2013
25. Hilda Fadaei (Ph.D. student), Student Poster Award from *Society of Environmental Toxicology and Chemistry, Chesapeake Potomac Regional Chapter Annual Meeting*, Grasonville, MD - 2013
26. Jose Gomez Eyles (post doc), Best poster award at the Gordon Research Conference, Environmental Sciences: Water, 2012.
27. Barbara Beckingham (Ph.D. student), Best poster award at the Association of Environmental Engineering and Science Professors Conference, Tampa, FL, June 2011.
28. Bo Wang (M.S. student). Best poster award at UMBC Graduate Research Conference, 2011.
29. Piuly Paul (Ph.D. student). Best oral presentation award at UMBC Graduate Research Conference, 2010.
30. Barbara Beckingham (Ph.D. student), Best poster award at UMBC Graduate Research Conference, 2010.
31. Josh Naiman and Alex Marion (High School students), Piuly Paul (Ph.D. student), Bo Wang (M.S. student) “Dietary Risk from PCBs in Pike and Caribou”. Best poster award at the Society of Risk Analysis Annual Meeting, Baltimore, Dec, 2009.
32. Barbara Beckingham (Ph.D. student) Best Student Platform Presentation, Society of Environmental Toxicology and Chemistry, Chesapeake and Potomac Regional Chapter Meeting, 2009.
33. Harsha K. Neerchal, H. Ryan Cheng, Adip G. Bhargav (High School students) won two awards (1st place Naval Marine Research award, and the 3rd place ITT systems award) at the Howard County Science Fair, Feb 21, 2009. The students worked with Ph.D. student Barbara Beckingham over the Summer and Fall of 2008 on their project titled: “Searching for Polychlorinated Biphenyls on Plastic Marine Debris:A Potential Vehicle for Transmission of Maritime Toxins”.
34. Katie DiBlasi (M.S. student) “Removal and Fate of Polycyclic Aromatic Hydrocarbon (PAH) Pollutants in an Urban Stormwater Bioretention Facility” Best oral presentation award, engineering category, UMBC Graduate Research Conference, 2008.
35. Piuly Paul (Ph.D. student) “The Effect of Activated Carbon Amendment to Soil on PCB Bioavailability Reduction in the Earthworm Eisenia fetida”. Best oral presentation award, engineering category, UMBC Graduate Research Conference, 2007.
36. Phil Gidley (Ph.D. student) “Column Studies for the Characterization of PAH Transport Potential through Sediment Caps.” Best poster award, engineering category, UMBC Graduate Research Conference, 2007.

**PATENTS AND DISCLOSURES**

1. U. Ghosh and K. Sowers. A Combined Passive Dosing-Sampling Device to Monitor In-Situ PCB Dechionnation Rates in Sediments. Patent disclosure. Sep, 2017.
2. U. Ghosh and M. Jalalizadeh, 2016. A new approach for passive sampling of sediment porewater. Patent Disclosure, UMBC Docket # UMBC 2016 005UG
3. K. Sowers, B. Kjellerup, and U. Ghosh 2015. Organic biofilm substrata as a microbial inoculum delivery vehicle for bioaugmentation of persistent organic pollutants in contaminated sediments and soils. (US Patent # 8,945,906). Licensed and commercialized
4. U. Ghosh and C.A. Menzie, 2010: A Low-Impact Delivery System for In-Situ Treatment of Contaminated Sediment. (US patent # 7,824,129) - Licensed and commercialized
5. R.G. Luthy and U. Ghosh, 2006: In Situ Stabilization of Persistent Hydrophobic Organic Contaminants in Sediments using coal- and wood-derived carbon sorbents. (US patent # 7,101,115) – Licensed and commercialized

**ACTIVE RESEARCH PROJECTS**

1. Development of a linked PCB mass balance and food chain model to assess effectiveness of management options in the Anacostia River. DC Department of Energy and Environment/USFWS. 3/2020-6/2021. ($155,552).
2. PCB monitoring and source tracking in the upper Roanoke River, City of Roanoke. 3/2020 – 3/2021 ($102,706)
3. Development of novel functionalized polymeric thin films for equilibrium passive sampling of PFAS compounds in surface and groundwater. U. Ghosh and G. Foster. Department of Defense, SERDP. 1/2020 – 12/2020. ($199,983)
4. Standardization of Polymeric Sampling for Measuring Freely Dissolved Organic Contaminant Concentrations in Sediment Porewater. M. Ward, U. Ghosh D. Reible, P.M. Gschwend. DoD ESTCP program. 6/2017-11/2020. (UMBC: $152,021; Total project: $1,030,000; PI: M Ward)
5. Development of in-situ Hg remediation approaches based on methylmercury bioavailability. U. Ghosh, C. Gilmour, and D. Elias. *National Institutes of Health, NIEHS Superfund Research Program R01 grant,* 9/2015-5/2021. ($822,457 +$99,910+$69,872 supplements)
6. Monitoring PCB levels in fish in MD. U. Ghosh. *Maryland Dept. of the Environment*. Long-term MOU. 2019-2020. ($36,100)
7. Actively shaken in situ passive sampler platform for methylmercury and organics. (Continuation of earlier SEED project). U. Ghosh and C. Gilmour. Department of Defense, SERDP. 7/2018-6/2021 ($985,483).
8. Refining Sources of PCBs in the Site Conceptual Site Model for the Back River watershed, Baltimore City, MD. U. Ghosh. City of Baltimore. 1/2019 – 2/2021. ($92,995)

**UNRESTRICTED GIFTS TOWARDS RESEARCH**

1. Alcoa. Remediation of PCB impacted sediments. U. Ghosh. ($680,000)
2. Dow Chemical Company. Remediation of dioxin impacted sediments. ($100,000)
3. Rohm & Haas. Remediation of mercury impacted sediments. ($30,000)
4. DuPont. Remediation of mercury impacted sediments. ($15,000)

**COLLABORATIVE NSF PROJECTS**

1. Acquisition of a multiple user Micro Computed Tomography (microCT) imaging facility. L. Zhu et al. *NSF Major Research Instrumentation Grant*, (Role: Co-PI) 2008. $384,001
2. Acquisition of an ICP-MS and an IC by UMBC for Use in Environmental and Human Health Research at UMBC and Howard University. Reed et al. *NSF Major Research Instrumentation Grant* (Role: Senior Personnel) NSF. 2006. $301,925.
3. Acquisition of Gas Chromatography-Mass Spectrometry System with Automated Thermal Desorption for Advancing Chemical and Biochemical Research. *NSF Major Research Instrumentation Grant* (Role: Senior Personnel) PI: Bill Lacourse. ($251,424)
4. Water in the Urban Environment. Welty et al. *NSF IGERT* (Role: Senior Personnel), NSF, 2006. $2,900,000.
5. Acquisition of Analytical Equipment for Interdisciplinary Research on Emerging Contaminants in Aquatic Environments. Luthy et al. *NSF Major Research Instrumentation Grant*. Jan 2002. (Role: Senior personnel responsible for coordinating and writing the proposal). 2002. $447,000.

**COMPLETED RESEARCH PROJECTS**

1. Passive Samplers and Mussel Deployment, Monitoring and Sampling for Organic Constituents in Anacostia River Tributaries. U. Ghosh, DC Dept of Energy and Environment and US Fish and Wildlife Service. 8/2016-8/2019. ($440,664)
2. Application of biofilm covered activated carbon particles as a microbial inoculum delivery system in weathered PCB contaminated sediment. B. Kjellerup, U. Ghosh, and K. Sowers. *Department of Defense, SERDP*. 4/15 – 3/18. (UMBC: $330.861; Total project: $1,368,000; PI: Kjellerup)
3. Long-term stability and efficacy of historic activated carbon deployments at diverse freshwater and Marine remediation sites. T. Bridges, S. Newell, U. Ghosh. C.A. Menzie. *Department of Defense, SERDP*. 1/16-12/17. (UMBC $179,364; Total: $624,664; PI: Bridges, US Army ERDC).
4. Global Innovation Partnership for the Development of Sustainable Technologies to Investigate, Restore and Protect the Urban Water Environment. *Global Innovation Initiative, The British Council.* (Collaboration network grant to Newcastle University with UMBC as a partner; £124,400).
5. Site Specific Partitioning, Biouptake, and Toxicity Assessment for Sediments from the Upper Tidal Saint Jones River, DE. *Delaware Dept. of Natural Resources and Environmental Control through Brightfields Inc.* 6/2013-5/2017 ($50,000).
6. Monitoring PCB levels in fish in MD. U. Ghosh. *Maryland Dept. of the Environment*. Long-term MOU. ($42,000 in FY 2017).
7. In-situ Treatment of Mirror Lake Sediments to Reduce Uptake of Pollutants in the Food Chain. *Delaware Dept. of Natural Resources and Environmental Control through Brightfields Inc*. 6/2013-5/2017 ($150,000).
8. Newark Bay sediment porewater chemistry assessment. U. Ghosh. *Tierra Solutions*. 7/15-6/16. ($47,000).
9. Treatability study for PCB impacted sands from Kure Island, HI. *US. Coast Guard/Element Environmental*. 1/15-6/16. ($26,069).
10. Combining bioavailability assays with modeling to predict PCBs in fish after remediation. U. Ghosh, A. Place. *National Institutes of Health, NIEHS Superfund Research Program R01 grant,* 9/2011 – 2/2016, ($857,040).
11. Field Pilot Study of Activated Carbon to Reduce In Situ Bioavailability of Methylmercury and PCBs in Marsh Sediments. U. Ghosh. *Dow Chemical Company/Exponent*. 7/12-3/17 ($519,613).
12. Actively shaken in situ passive sampler platform for methylmercury and organics. U. Ghosh and C. Gilmour. *Department of Defense, SERDP*.1/2015-2/2016 ($150,000).
13. Bioamended Activated Carbon for In Situ Bioremediation of Polychlorinated Biphenyls. K. Sowers and U. Ghosh. *Maryland Innovation Initiative Program.* ($100,000; PI Sowers)
14. Site Specific Partitioning and Bioavailability Assessment for Sediments from South Wilmington Wetlands. Brightfields Inc. 3/15 – 7/15.
15. Green Infrastructure for Urban Landscapes. S. Schwartz (PI). *National Fish and Wildlife Foundation*. 6/2013-6/2015.
16. In-situ remediation treatability studies for Middle River sediments. *Lockheed Martin*, 6/13- 8/14 ($60,000).
17. Research on the Factors Influencing Mercury Speciation, Bioavailability. *Dow Chemical Company/Exponent*. 4/13-12/14 ($45,000).
18. PAH interactions with soil and effects on bioaccessibility and bioavailability to humans. Y. Lowney, M. Ruby, U. Ghosh, S. Roberts, R.A. Schoof, C.A. Menzie, A. Bunge. *Department of Defense, SERDP*. 3/10 – 6/14. (UMBC: $315,026; Total project: $1,492,402)
19. Phase 2 South River Sediment Amendment Studies: Impacts of Activated Carbon Amendment on methyl mercury Production. *DuPont/Exponent*. 1/11 – 12/11, ($28,000)
20. Activated biochars with iron for in-situ sequestration of organics, metals, and carbon. U. Ghosh. *Department of Defense, SERDP*. 3/11 – 8/12, ($149,376).
21. Identifying prominent sources of polychlorinated biphenyl (PCB) contamination in the Anacostia River watershed. U. Ghosh. *Maryland Department of Environment*. 10/2009 – 10/2012. ($58,100)
22. Pilot-scale Research of Novel Amendment Delivery for In-situ Sediment Remediation. U. Ghosh and C. A. Menzie. *National Institutes of Health, NIEHS Superfund Research Program R01 grant*, 10/07 – 8/12. (UMBC: $811,255 + $205,839 ARRA supplement)
23. Evaluating the efficacy of a low-impact delivery system for in-situ treatment of sediments contaminated with methylmercury and other hydrophobic chemicals. C.A. Menzie, B. Henry, U. Ghosh, C. Gillmour. *Department of Defense, ESTCP*. 3/08 – 12/12. (UMBC: $226,981, Total: $1,086,143)
24. Assessment of contaminant levels in fish caught in Maryland to derive fish consumption advisories. U. Ghosh. *Maryland Department of Environment*. 1/2009 – 8/2011. (94,538)
25. Marine debris and contaminant exposure to aquatic life. U. Ghosh. *National Fish and Wildlife Foundation, Marine Debris Program*. 11/09 – 8/11. ($60,000).
26. ASTM Inter-laboratory Validation study for porewater PAH measurement using Solid Phase Microextraction. U. Ghosh. *ENSR*, 2/10 – 12/10, ($46,444).
27. Measurement of PAH Flux from Coal Tar in Exposed Aquatic Sediments. U. Ghosh and P. Gidley, *Anchor-QEA*. 4/2010-12/2010 ($14,893).
28. The Determination of Sediment Polycyclic Aromatic Hydrocarbon (PAH) Bioavailability using Supercritical Fluid Extraction (SFE) and Ultra-Trace Porewater (UTP) analysis. D. Nakles, A. Hawkins, S. Hawthorne, T. S. Bridges, U. Ghosh. *Department of Defense, ESTCP*. 4/07 – 12/09. (UMBC: $71,000)
29. Sediment remediation through activated carbon amendment: Long-term biological, chemical and physical monitoring of a field pilot in Trondheim Harbour. Gerard Cornelissen, Gijs D. Breedveld, Amy M.P. Oen, Upal Ghosh, Dag Broman, Øystein Stokland. *Norwegian Research Council*. 1/2008 – 12/2010. (Travel funds for UMBC)
30. Rational Selection of Tailored Amendment Mixtures and Composites for In Situ Remediation of Contaminated Sediments. U. Ghosh, B.E. Reed, V. Magar, T.S. Bridges, R.N. Millward. *Department of Defense, SERDP*. March 2006- March-2010. ($480,701)
31. Application of Tools to Measure PCB Microbial Dechlorination and Flux into Water during In-situ Treatment of Sediments. J. Baker, U. Ghosh, K. Sowers. *Department of Defense, SERDP*. March 2006- Dec 2009. (UMBC: $192,293, Total: $749,654)
32. Field Testing of In-Situ Stabilization of PCBs and PAHs in Sediment Using Activated Carbon as Sorbent. R.G. Luthy, D. Smithenry, U. Ghosh, T.S. Bridges, R.N. Milward. Environmental Security Technology Certification Program, (DoD). June 2005 – December 2008. $1,006,000 (UMBC: $173,736).
33. Characterization of Contaminant Migration Potential through in-place Sediment Caps. B. Sass, V.S. Magar, U. Ghosh. 9/05 - 8/08. Strategic Environmental Research and Development Program (DOD). $1,368,432. (UMBC: 336,408)
34. Deriving Reliable Pollutant Removal Rates for Municipal Street Sweeping and Storm Drain Cleanout Programs in the Chesapeake Bay Basin. T. Schueler, U. Ghosh, B.E. Reed, C. Welty. EPA Chesapeake Bay Program. July 2005- June 2008. $200,000. (UMBC: $100,000)
35. Purchase of an autosampler at UMBC for solid phase microextraction (EPA method validation study). U. Ghosh. Retec and Alcoa. 1/07 – 8/07. $32,000.
36. Minaturized and inexpensive wireless sensor platform for distributed monitoring of environmental parameters. I. Kostov. U. Ghosh, G. Rao. Strategic Environmental Research and Development Program (DOD) SEED project. Jan 2006- Dec 2006. $100,000.
37. Assessment of Areas of Concern Sediments for Activated Carbon Treatment. U. Ghosh. EPA Great Lakes National Program Office. 10/04-6/07. $63,500.
38. Development of Sorbent Pellets for the Treatment of Contaminated Sediments. C. A. Menzie and U. Ghosh. EPA SBIR Program. 4/06 – 9/06. $70,000. (UMBC: $13,939).
39. Use of Caffeine as a Molecular Marker for Wastewater Contamination in Urban Streams. U. Ghosh. NSF supplemental grant through Baltimore Ecosystem Study. 9/04 – 10/05. $13,000.
40. Preliminary Field Testing of Activated Carbon Mixing and In Situ Stabilization of PCBs in Sediment. U.S. Navy (subcontract through Battelle Pacific Northwest Lab) 7/04 – 3/05. $10,000.
41. PAH Partitioning and Organic Matter Characterization in Manufactured Gas Plant Site Sediments (Freshwater). U. Ghosh. Gas Technology Institute. 2/03 – 8/04. $70,000.
42. PAH Partitioning and Organic Matter Characterization in Manufactured Gas Plant Site Sediments (Estuarine). U. Ghosh. Northeast Gas Association. 2/03 – 12/04. $36,000.
43. In Situ Stabilization of Persistent Organic Contaminants in Marine Sediments. R. G. Luthy, U. Ghosh, R. N. Zare, J.W. Talley, T. Bridges. Sep, 2001- Aug, 2004. Strategic Environmental Research and Development Program (DoD). $1,500,000, ($71,331 for U. Ghosh at UMBC for FY2003).
44. Measurement of Site-Specific Partition Coefficients and Risk Assessment for PAHs at Alameda Point, CA. R.G. Luthy and U. Ghosh. U.S. Navy. March 2002- March 2003. $160,000.
45. Microscale Characterization of Binding and Sequestration of Persistent, Bioaccumulative, and Toxic Organic Compounds in Biotreated Soils. S. L. Larson, R.G. Luthy, and U. Ghosh. 2001-2003. US Army Waterways Experiment Station, Environmental Quality Basic Research (BT25). $100,000.
46. Identification of Location and Nature of Organic Matter on Sediments. U. Ghosh. Independent investigator proposal and request for beamtime, Advanced Light Source, LBNL. Jan 1999- Jun 2002.
47. Gift in support of research. Alcoa: (1999, at Carnegie Mellon University) $10,000.
48. PCB Mobility Reduction by Biostabilization. A.S. Weber, J.N. Jensen, U. Ghosh, U.S. Department of Energy, Oct 1996 - Sep 1997. (Graduate Research Assistant) $149,801.

**PEER REVIEWED JOURNAL PUBLICATIONS**

1. Passive sampling protocol for ex situ determination of freely dissolved concentrations of hydrophobic organic chemicals in sediments and soils: Basis for interpreting toxicity and assessing bioavailability, risks, and remediation necessity. M. T.O. Jonker, R. M. Burgess, U. Ghosh, P. M. Gschwend, S. E. Hale, R. Lohmann, M. J. Lydy, K. A. Maruya, D. Reible, F. Smedes. In Press. ***Nature Protocols***. 2020.
2. Development of a novel equilibrium passive sampling device for methylmercury in sediment and soil porewaters. Sanders, J.P.; Alyssa McBurney. A.; Gilmourc, C.C.; Schwartz, G.E.; Kane Driscoll, S.B.; Brown, S.S.; Ghosh, U. ***Environ. Toxicol. Chem***. 39, 323–334. 2020.
3. Full Scale Application of Activated Carbon to Reduce Pollutant Bioavailability in a 5-Acre Lake.Patmont, E.; Jalalizadeh, M.; Needham, T.; Vance, J.; Greene, R.; Cargill, J.; Ghosh, U. ***ASCE J. Env. Engr***. 146(5): 04020024. 2020.
4. Response to “Comment on ‘A Pilot-Scale Field Study: In Situ Treatment of PCB-Impacted Sediments with Bioamended Activated Carbon’ Rayford B. Payne, Upal Ghosh, Harold D. May, Christopher W. Marshall, and Kevin R. Sowers. ***Environ. Sci. Technol***., 53, 6104-6105, 2019.
5. A Pilot-Scale Field Study: In Situ Treatment of PCB-Impacted Sediments with Bioamended Activated Carbon. Payne, R.B.; Ghosh, U.; May, H.D.; Marshall, C.W.; Sowers, K.R. ***Environ. Sci. Technol***., 53, 2626−2634. 2019.
6. Bioaccumulation in Functionally Different Species: Ongoing Input of PCBs with Sediment Deposition to Activated Carbon Remediated Beds. Gidley, P.T.; Kennedy, A.J.; Lotufo, G.R.; Wooley, A.H.; Melby. N.L.; Ghosh, U.; Burgess, R.M.; Mayer, P.; Fernandez, L.A.; Schmidt, S.N.; Wang, A.P.; Ruiz, C.E.; and Bridges, T.S. ***Environ. Toxicol. Chem***. 38(10):2326-2336. 2019.
7. Kinetics of PCB Microbial Dechlorination Explained by Freely Dissolved Concentration in Sediment Microcosms. Needham, T.P.; Payne, R.B.; Sowers, K.R.; Ghosh, U. ***Environ. Sci. Technol***. 53, 13, 7432-7441. 2019
8. Four decades since the ban, old urban wastewater treatment plant remains a dominant source of PCBs to the environment. Needham, T.P. and Ghosh, U. ***Environmental Pollution*** 246, 390-397. 2019.
9. Impact of Dissolved Organic Matter on Mercury and Methylmercury Sorption to Activated Carbon in Soils: Implications for Remediation. Grace E. Schwartz, James P. Sanders, Alyssa McBurney, Upal Ghosh, Cynthia C. Gilmour. ***Environ. Sci: Proc. Impacts***. 21. 2018
10. Evaluation of passive sampling polymers and non-equilibrium adjustment methods in a multi-year surveillance of sediment porewater PCBs. James P. Sanders, Natasha A. Andrade, Upal Ghosh. ***Environ. Toxicol. Chem.*** 37, 2496–2505, 2018.
11. Persistent reductions in the bioavailability of PCBs at a tidally inundated Phragmites australis marsh amended with activated carbon. James P. Sanders, Natasha A. Andrade, Charles A. Menzie, C. Bennett Amos, Cynthia C. Gilmour, Elizabeth A. Henry, Steven S. Brown, Upal Ghosh. ***Environ. Toxicol. Chem.*** 37, 2487–2495, 2018.
12. Enhanced biochars can match activated carbon performance in sediments with high native bioavailability of PCBs. J.L. Gomez-Eyles and U. Ghosh. ***Chemosphere***, 203, 179-187, 2018.
13. Advancing the use of passive sampling in risk assessment and management of contaminated sediments: Results of an international passive sampling inter-laboratory comparison. Michiel T.O. Jonker, Stephan A. van der Heijden, Dave Adelman, Jennifer N. Apell, Robert M. Burgess, Yongju Choi, Loretta A. Fernandez, Geanna M. Flavetta, Upal Ghosh, Philip M. Gschwend, Sarah E. Hale, Mehregan Jalalizadeh, Mohammed Khairy, Mark A. Lampi, Wenjian Lao, Rainer Lohmann, Michael J. Lydy, Keith A. Maruya, Samuel A. Nutile, Amy M.P. Oen, Magdalena I. Rakowska, Danny Reible, Tatsiana P. Rusina, Foppe Smedes, and Yanwen Wu. ***Environ. Sci. Technol***. 52(6):3574-3582. 2018
14. Activated carbon thin-layer placement as an in situ mercury remediation tool in a Penobscot River salt marsh Cynthia Gilmour, Tyler Bell, Ally Soren, Georgia Riedel, Gerhardt Riedel, Dianne Kopec, Drew Bodaly, Upal Ghosh. ***Science of the Total Environment*** 621, 839–848. 2018.
15. Cross Validation of Two Partitioning-Based Sampling Approaches in Mesocosms Containing PCB Contaminated Field Sediment, Biota, and Activated Carbon Amendment. Stine N. Schmidt, Alice P. Wang, Philip T. Gidley, Allyson H. Wooley, Guilherme R. Lotufo, Robert M. Burgess, Upal Ghosh, Loretta A. Fernandez, and Philipp Mayer. ***Environ. Sci. Technol***. 51, 9996−10004, 2017.
16. Assimilation Efficiency of Sediment-Bound PCBs Ingested by Fish Impacted by Strong Sorption. Hilda Fadaei, Ernest Williams, Allen Place, John Connolly, and Upal Ghosh. ***Environ. Toxicol. Chem***. 36, 3480-3488, 2017.
17. Mesocosm Studies on the Efficacy of Bioamended Activated Carbon for Treating PCB-Impacted Sediment. Rayford B Payne, Upal Ghosh, Harold D May, Christopher W. Marshall, and Kevin R Sowers. ***Environ. Sci. Technol***. 51, 18, 10691-10699, 2017.
18. Analysis of Measurement Errors in Passive Sampling of Porewater PCB Concentrations under Static and Periodically Vibrated Conditions. M. Jalalizadeh and Upal Ghosh. ***Environ. Sci. Technol***. 51, 7018-7027, 2017.
19. Differential bioavailability of polychlorinated biphenyls associated with environmental particles: Microplastic in comparison to wood, coal and biochar. Beckingham B, Ghosh, U. ***Environmental Pollution***, 2017, 220, 150-158.
20. In situ passive sampling of sediment porewater enhanced by periodic vibration. Jalalizadeh, M. and Ghosh, U. ***Environ. Sci. Technol*.** 2016, 50, 8741–8749.
21. Effect of PAH source materials and soil components on partitioning and dermal uptake. Xia, H., Gomez-Eyles, J.L., Ghosh, U. ***Environ. Sci. Technol***. Dec 2016, 50, 3444–3452.
22. Oral bioavailability and dermal absorption of PAHs from soil – state of the science. Ruby, M.V., Gomez-Eyles, J.L., Ghosh, U., Roberts, S.M., Tomlinson, P., Menzie, C., Kissel, J.C., Bunge, A.L., Lowney, Y.W. Submitted to ***Environ. Sci. Technol***. 2016, 50, 2151–2164.
23. Effect of PCB Bioavailability Changes in Sediments on Bioaccumulation in Fish.. Fadaei H., Watson, A., Place, A., Connolly, J., and Ghosh, U.***Environ. Sci. Technol*.** 2015, 49, 12405–12413.
24. In Situ Sediment Treatment Using Activated Carbon: A Demonstrated Sediment Cleanup Technology. Patmont, C, U. Ghosh, et al. ***Integr Environ Assess Manage***, 11, 195-207, 2015.
25. Passive Sampling Methods for Contaminated Sediments: Practical Guidance for Selection, Calibration and Implementation. Ghosh U, Kane Driscoll S, Burgess R, Gobas FAPC, Maruya, K, Jonker C, Gala W, Choi Y, Beegan C, Apitz S, Mortimer M, Reible D. ***Integr Environ Assess Manage***. 10, 210-223. 2014.
26. Kinetics and threshold level of dechlorination activity by the anaerobic ultramicrobacterium Dehalobium Chlorocoercia DF-1. Nathalie J. Lombard, Upal Ghosh, Birthe Kjellerup, Kevin Sowers. ***Environ. Sci. Technol***. 48, 4353−4360, 2014.
27. Kjellerup, B.V.V.; Naff, C.; Edwards, S.J.; Ghosh, U.; Baker, J.E.; Sowers, K. Effects of activated carbon on reductive dechlorination of PCBs by halorespiring bacteria indigenous to sediments. ***Water Research***. 52, 1-10, 2013.
28. Evaluation of biochars and activated carbons for in situ remediation of sediments impacted with organics, mercury and methylmercury. Jose L. Gomez-Eyles\*\*, Carmen Yupanqui\*, Barbara Beckingham\*, Georgia Riedel, Cynthia Gilmour, and Upal Ghosh. ***Environ. Sci. Technol***. 47, 13721−13729, 2013.
29. The Potential of Biochar Amendments to Remediate Contaminated Soils. Jose L. Gomez-Eyles, Luke Beesley, Eduardo Moreno-Jimenez, Upal Ghosh, Tom Sizmur. Chapter 4 In Biochar and Soil Biota. Edited By Natalia Ladygina, Francois Rineau. Taylor and Francis Group, Feb 21, 2013.
30. Activated carbon mitigates mercury and methylmercury bioavailability in contaminated sediments. Cynthia C. Gilmour, Georgia S. Riedel, Gerhardt Riedel, Seokjoon Kwon\*\*, Richard Landis, Steven S. Brown, Charles A. Menzie, Elizabeth A. Henry, and Upal Ghosh. ***Environ. Sci. Technol***. 47, 13001−13010, 2013.
31. Observations of limited secondary effects with activated carbon amendment in river sediments. Beckingham, Barbara\*, Ghosh, Upal, Buys, David, and VanDewalker, Heather. ***Environ. Toxicol. Chem***. **32**, 1504-1515, 2013.
32. Polyoxymethylene passive samplers to monitor changes in bioavailability and diffusive flux of PCBs after activated carbon amendment to sediment in the field. Barbara Beckingham\*, and Upal Ghosh. ***Chemosphere***. **91**, 1401-1407, 2013.
33. Advection Dominated Transport of Polycyclic Aromatic Hydrocarbons in Amended Sediment Caps. Philip Gidley\*, Seokjoon Kwon\*\*, Alexander Yakirevich, Victor Magar, Upal Ghosh. ***Environ. Sci. Technol***., 46, 5032-5039, 2012.
34. Spatial distribution of PCB dechlorinating bacteria and activities in contaminated soil. Birthe Kjellerup, Piuly Paul\*, Upal Ghosh, Harold May and Kevin Sowers. ***Applied and Environmental Soil Science***. Article ID 584970, 2012.
35. Investigating differential binding of chlorinated dioxins and furans in soil and soil components using selective supercritical fluid extraction. Steve Hawthorne, Yunzhou Chai, John W. Davis, Michael Wilken, and Upal Ghosh. ***Chemosphere***. 88, 261-269, 2012.
36. Sorption of organic compounds to fresh and field-aged activated carbons in soils and sediments. Amy M.P. Oen, Marie Elmquist Kruså, Barbara Beckingham\*, Upal Ghosh, Richard G. Luthy, Thomas Hartnik, Thomas Henriksen, Gerard Cornelissen. ***Environ. Sci. Technol***., 46, 810–817, 2012.
37. Effectiveness of Activated Carbon and Biochar in Reducing the Availability of Polychlorinated Dibenzo-p-dioxins/dibenzofurans in Soils. Yunzhou Chai, Rebecca J. Currie, John W. Davis, Michael Wilken, Greg D. Martin, Vyacheslav N. Fishman, and Upal Ghosh. ***Environ. Sci. Technol***., 46, 1035-1043, 2011.
38. Field scale reduction of PCB bioavailability with activated carbon amendment to river sediments. Barbara Beckingham\* and Upal Ghosh. ***Environ. Sci. Technol***., 45, 10567–10574, 2011.
39. Influence of Activated Carbon Amendment on the Accumulation and Elimination of PCBs in the Earthworm *Eisenia fetida*. P. Paul\*, and U. Ghosh. ***Environmental Pollution***, 159, 3763-3768, 2011.
40. In-situ sorbent amendments: A new direction in contaminated sediment management. Upal Ghosh, Richard G. Luthy, Gerard Cornelissen, David Werner, Charles A. Menzie. ***Environ. Sci. Technol***. Feature Article, 45, 1163–1168. 2011.
41. Study of the biouptake of labeled single walled carbon nanotubes using fluorescence based method. Minghui Yang, Seokjoon Kwon\*\*, Yordan Kostov, Avraham Rasooly, Govind Rao, and Upal Ghosh. ***Environ. Chem***. ***Letters*.** 9, 235-241, 2011.
42. Polychlorinated biphenyl sorption to activated carbon and the attenuation caused by sediment. Sarah Hale, Seokjoon Kwon\*\*, Upal Ghosh, and David Werner. ***Global NEST Journal***, 12, 318-326, 2010.
43. Comparison of field vs. laboratory exposures of *L. variegatus* to PCB impacted river sediments. Barbara Beckingham\*\* and Upal Ghosh. ***Environ. Toxicol. Chem***., 29, 2851-2858, 2010.
44. Bioaccumulation of polychlorinated dibenzo-p-dioxins/dibenzofurans in *E. foetida* from floodplain soils and the effect of activated carbon amendment. Sonja K. Fagervold\*\*, Yunzhou Chai, John W. Davis, Michael Wilken, and Upal Ghosh. ***Environ. Sci. Technol***., 44, 5546-5552, 2010.
45. Role of Black Carbon in the Distribution of Polychlorinated Dibenzo-p-dioxins/dibenzofurans in Aged Field-contaminated Soils. Yunzhou Chai, John W. Davis, Michael Wilken, Greg D Martin, Daniel M. Mowery, and Upal Ghosh. ***Chemosphere***., 82, 639-647, 2010.
46. Particle-Scale measurement of PAH aqueous equilibrium partitioning in Impacted Sediments. Upal Ghosh and Steve Hawthorne, ***Environ. Sci. Technol***. 44, 1204-1210, 2010.
47. Polychlorinated biphenyl sorption and availability in field-contaminated sediments. Sarah E. Hale, Seokjoon Kwon\*\*, Upal Ghosh, Richard G. Luthy, David Werner. ***Environ. Sci. Technol***. 44, 2809-2815, 2010.
48. Evaluation of sorbent amendments for in situ remediation of metal contaminated sediments. Seokjoon Kwon\*\*, Jeff Thomas\*, Brian E. Reed, Laura Levine, Victor S. Magar, and Upal Ghosh. ***Environ. Toxicol. Chem***., 29, 1883-1892, 2010.
49. Quantification of activated carbon contents in soils and sediments using chemothermal and wet oxidation methods. Braendli, Rahel; Bergsli, Anders; Ghosh, Upal; Hartnik, Thomas; Breedveld, Gijsbert; Cornelissen, Gerard. ***Environmental Pollution.*** 157, 3465-3470, 2009.
50. Field application of activated carbon amendment for in-situ stabilization of polychlorinated biphenyls in marine sediment. Cho, Y., Ghosh, U., Kennedy, A. J., Grossman\*, A., Ray, G.; Tomaszewski, J. E., Smithenry, D., Bridges, T. S., Luthy, R. G. ***Environ. Sci. Technol***. 43, 3815-3823, 2009.
51. Removal and Fate of Polycyclic Aromatic Hydrocarbon Pollutants in an Urban Stormwater Bioretention Facility. C. DiBlasi\*, H. Li, A.P. Davis, and U. Ghosh. ***Environ. Sci. Technol***. 43, 494-502, 2009.
52. Modeling PCB Mass Transfer and Bioaccumulation in a Freshwater Oligochaete before and after Amendment of Sediment with Activated Carbon. X. Sun\*; D. Werner; U. Ghosh. ***Environ. Sci. Technol***., 43, 1115-1121, 2009.
53. Measurement of Activated Carbon and Other Black Carbons in Sediments. Adam Grossman\*, and Upal Ghosh. ***Chemosphere,*** 75, 469-475, 2009.
54. Pilot plant experiences using physical and biological treatment steps for the remediation of groundwater from a former MGP site. T. Wirthensohn, P. Schoeberl, U. Ghosh, and W. Fuchs. In press, ***Journal of Hazardous Materials***, 163, 43-52, 2009.
55. The effect of activated carbon on partitioning, desorption, and biouptake of native PCBs in four freshwater sediments. X. Sun\* and U. Ghosh. ***Environ. Toxicol. Chem***. 27, 2287-2295. 2008.
56. Site specific microbial communities in three PCB-impacted sediments are associated with different in situ dechlorinating activities. B.V. Kjellerup, X. Sun\*, U. Ghosh, H.D. May, K.R. Sowers. ***Environ. Microbiol****.*, 10, 1296-1309, 2008.
57. PCB Bioavailability Control in *Lumbriculus variegatus* Through Different Modes of Activated Carbon Addition to Sediments. X. Sun\* and U. Ghosh. ***Environ. Sci. Technol***. 41, 4774-4780, 2007.
58. The Role of Black Carbon in Influencing Availability of PAHs in Sediments. U. Ghosh. ***Human and Ecological Risk Assessment***. 13, 276–285, 2007.
59. Field methods for amending marine sediment with activated carbon and assessing treatment effectiveness. Y-M. Cho, D.W. Smithenry, U. Ghosh, A.J. Kennedy, R.N. Milward, T.S. Bridges, R.G. Luthy. ***Marine Environment Research***. 64, 541–555, 2007.
60. Role of Weathered Coal Tar Pitch in the Partitioning of Polycyclic Aromatic Hydrocarbons in Manufactured Gas Plant Site Sediments. M.F. Khalil\*, U. Ghosh, J.P. Kreitinger. ***Environ. Sci. Technol***. 40, 5681-5687. 2006.
61. Modeling Polychlorinated Biphenyl Mass Transfer after Amendment of Contaminated Sediment with Activated Carbon. D. Werner, U. Ghosh, and R. G. Luthy. ***Environ. Sci. Technol***. 40, 4211-4218. 2006.
62. Addition of Activated Carbon to Sediments to Reduce PCB Bioaccumulation by a Polychaete (Neanthes arenaceodentata) and an Amphipod (Leptocheirus plumulosus). R.N. Millward, T.S. Bridges, U. Ghosh, J.R. Zimmerman, R.G. Luthy. ***Environ Sci. Technol***. 39, 2880-2887, 2005.
63. The Effects of Dose and Particle Size on Activated Carbon Treatment to Sequester Polychlorinated Biphenyls and Polycyclic Aromatic Hydrocarbons in Marine Sediments. J.R. Zimmerman, D. Werner, U. Ghosh, R.N. Millward, T.S. Bridges, R.G. Luthy. ***Environ. Toxicol. Chem***. 24, 1594-1601, 2005.
64. Response to comment on: "Addition of carbon sorbents to reduce PCB and PAH bioavailability in marine sediments. Physicochemical tests. J.R. Zimmerman, U. Ghosh, R.G. Luthy, R.N. Millward, T.S. Bridges. J.R. Zimmerman, U. Ghosh, R.G. Luthy, R.N. Millward, T.S. Bridges. ***Environ Sci. & Technol***, 39, 1199-1200, 2005.
65. Effect of Oil and Grease on PCB Phase Partitioning During Land Biotreatment of PCB-Impacted Sediment. S.W. McNamara, U. Ghosh, D.A. Dzombak, A.S. Weber, J.S. Smith, and R.G. Luthy. ***ASCE Journal of Environmental Engineering***, 278-286, Feb, 2005.
66. Addition of carbon sorbents to reduce PCB and PAH bioavailability in marine sediments. Physicochemical tests. J.R. Zimmerman, U. Ghosh, R.G. Luthy, R.N. Millward, T.S. Bridges. ***Environ Sci. & Technol***, 38, 5458-5664, 2004.
67. Thermal Programmed Desorption (TPD) of PAHs From Mineral and Organic Surfaces. Talley, J.W., Ghosh, U., Tucker, S., Furey, J., and Luthy, R.G. ***Environmental Engineering Science***. 21, 647-660, 2004.
68. PAH Sorption Mechanism and Partitioning Behavior in Lampblack-Impacted Soils from Former Oil-Gas Plant Sites. L. Hong, U. Ghosh, T. Mahajan, R.N. Zare, and R.G. Luthy. ***Environ Sci. & Technol***., 37, 3625-3634, 2003.
69. PCB and PAH Speciation Among Particle Types in Contaminated Sediments and Effects on PAH Bioavailability. U. Ghosh, J. Zimmerman, R.G. Luthy. ***Environ. Sci. & Technol***., 37, 2209-2217, 2003.
70. Particle-Scale Understanding of the Bioavailability of PAHs in Sediment. J.W. Talley, U. Ghosh, S.G. Tucker, J.S. Furey, R.G. Luthy, ***Environ. Sci. & Technol.***, Special issue in honor of James J. Morgan, 36, 477-483, 2002.
71. Particle-scale Investigation of PAH Desorption Kinetics and Thermodynamics from Sediments. U. Ghosh, J.W. Talley, R.G. Luthy, ***Environ. Sci. & Technol.***, 35, 3468-3475, 2001.
72. Microscale Detection of Polychlorinated Biphenyls Using Two-Step Laser Mass Spectrometry. T.B. Mahajan, U. Ghosh, R.N. Zare, R.G. Luthy. ***International Journal of Mass Spec.*** 212, 41-48, 2001.
73. Microprobe Laser Mass Spectrometry Studies of Polycyclic Aromatic Hydrocarbon Distributions on Harbor Sediments and Coals. J.S. Gillette, U. Ghosh, T. Mahajan, R.G. Luthy, and R.N. Zare. ***Israel Journal of Chemistry,*** 41, 105-110, 2001.
74. Remediation of PAH Contaminated Sediments Under Denitrifying Conditions and Isolation of Microorganisms Capable of Degrading Naphthalene Under Denitrifying Conditions. IS Ahn, U Ghosh, R Luthy. ***J. Environ. Sci. Eng.*** 3, 69-79.
75. Microscale Location, Characterization, and Association of Polycyclic Aromatic Hydrocarbons on Harbor Sediment Particles. U. Ghosh, R.G. Luthy, J.S. Gillette and R.N. Zare. ***Environ. Sci. & Technol.***, 34, 1729-1736, 2000.
76. Relationship Between PCB Desorption Equilibrium, Kinetics, and Availability During Land Biotreatment. U. Ghosh, A.S. Weber, J.N. Jensen, J.R. Smith. ***Environ. Sci. & Technol.***, 34, 2542-2548, 2000.
77. Congener Level PCB Desorption Kinetics of Field Contaminated Sediments. U. Ghosh, A.S. Weber, J.N. Jensen, J.R. Smith. ***Journal of Soil Contamination***, vol. 8, no. 5, 1999.
78. Granular Activated Carbon (GAC) and Biological Activated Carbon (BAC) Treatment of Waters Containing PCBs and Particulates. U. Ghosh, A.S. Weber, J.N. Jensen, J.R. Smith. ***Water Environment Research***, vol. 71, no. 2, 1999.
79. PCB Congener Distribution in Aqueous Solution Prepared by Glass Bead Generator Column. U. Ghosh, A.S. Weber, J.N. Jensen, J.R. Smith. ***Water Research***, vol. 32, no. 5, 1998.
80. Surface Aeration. J. Atkinson, S. Blair, S. Taylor, U. Ghosh. ***ASCE Journal of Environmental Engineering***, vol. 12, no. 1, 1995.
81. Economic Analysis and Ecological Impacts of Fish and Shellfish Industry in India. V.K. Sharma, U. Ghosh, G. S. Haripriya. ***Encology***, vol. 11, no. 10, 1997.

**BOOK CHAPTERS, REVIEWS AND KEY REPORTS**

1. Laboratory, Field, and Analytical Procedures for Using Passive Sampling in the Evaluation of Contaminated Sediments: User’s Manual. R. Burgess, S.B. Kane Driscoll, A.G. Burton, U. Ghosh, P.M. Gschwend, D.D. Reible, A. Ahn, T. Thompson, ***US EPA/600/R- 16/357. Office of Research and Development, Washington, DC 20460***, Feb 2017.
2. The potential of Biochar Amendments to Remediate Contaminated Soils. Gomez-Eyles, J.L., Beesley, L., Moreno-Jimenez, E., U. Ghosh, Sizmur, T. in ***Biochar and Soil Biota***. Ed: Ladygina, N., and Rineau, F. CRC. Press, Boca Raton, FL. 2013.
3. Contaminated Aquatic Sediments: A literature Review. X. Sun, M.A. Hunter and U. Ghosh. ***Water Environment Research, Literature Review***, 2005.
4. Contaminated Aquatic Sediments: A literature Review. M.A. Hunter and U. Ghosh. ***Water Environment Research, Literature Review***, 2004.
5. Contaminated Aquatic Sediments: A literature Review. U. Ghosh. ***Water Environment Research, Literature Review***, September/October 2002, (64).
6. Trade and Environment Linkages: A case study of India. J. Parikh, V. K. Sharma, U. Ghosh, and M. Panda. ***Report prepared for the United Nations Conference on Trade & Development***, 1993.
7. Natural Resource Accounting for Soils: Towards an Empirical Estimate of Costs of Soil Degradation for India. K. Parikh, and U. Ghosh. ***Discussion Paper # DP-91-48, Indira Gandhi Institute of Development research***. 1998.

**CONFERENCE PAPERS**

1. Implementing a Sustainable Storm Water Management Program in an Urban Center - Baltimore, Maryland. Catherine J. DiBlasi, Neely Law, Upal Ghosh. ***Talking and Walking Sustainability Conference***. February 20-23, 2007 - Auckland, New Zealand.
2. Bioavailability and toxicity of PAHs at MGP sites. E. F. Neuhauser, J. P. Kreitinger, D.V. Nakles, S. B. Hawthorne, F.G. Doherty, U. Ghosh, M.F. Khalil, R.S. Ghosh, M.T.O. Jonker, S.A. van der Heijden. ***The International Symposium & Exhibition on the Redevelopment of Manufactured Gas Plant Sites (MGP 2006)*** 4-6 April 2006, Reading, UK.
3. Role of Black Carbon and Other Forms of Carbon on the Partitioning of PAHs in MGP sediments. U. Ghosh, and M.F. Khalil. ***American Chemical Society, National Meeting***, Washington, DC, Aug 28- Sep 1, 2005.
4. Adsorption Kinetics and Equilibrium Partitioning of PCBs in Coal, Coke, and Activated Carbon. A. Afzal and U. Ghosh. ***American Chemical Society National Meeting session on Advances in Environmental Reaction Kinetics and Thermodynamics***, Philadelphia, PA, Aug 22-26, 2004.
5. PCB Mass Removal from Contaminated Sediments Using Retrievable Magnetic Activated Carbon. N. Tagoe, S. Duyvesteyn, and U. Ghosh. ***American Chemical Society National Meeting, session on PCBs in Freshwater and Marine Sediments.*** Philadelphia, PA Aug 22-26, 2004.
6. Microscale Association of Organic Contaminants to Sediment Particles and Implications for Risk Management. U. Ghosh, J.R. Zimmerman, P.B. McLeod, R.G. Luthy, R.N. Milward, T.S. Bridges. ***Physicochemical Processes in Environmental Systems: Symposium in Honor of Prof. Walter J. Weber, Jr. American Chemical Society***, New York, NY. Sep 7-11, 2003.
7. Contaminant Exposure Control in Sediments Using Activated Carbon Adsorbent. R.G. Luthy, J.R. Zimmerman, P.M. McLeod, U. Ghosh, R.N. Millward, T.S. Bridges. ***NIEHS Superfund Basic Research Program on Bioremediation and Biodegradation***, Asilomar, CA. June 9-12, 2002.
8. Long-term Passive PCB/PAH Bioremediation Following Active Land Treatment. U. Ghosh, J.R. Smith, M. Mitraka, J.V. Fleckeinstein, and A.S. Weber. ***In Situ and On-Site Bioremediation, 6th International Symposium***, San Diego, CA. June 4-7, 2001.
9. Kinetics and Thermodynamics of PAH Release from Sediment Particles. U. Ghosh, R. G. Luthy, and J.W. Talley. ***American Chemical Society 220th National Meeting****,* Symposium on Sequestration of Organic Solutes in Natural Organic Matter and Mineral Aggregates, Washington, DC, Aug 2000.
10. Microscale Characterization of PAH Sequestration on Sediments. U. Ghosh, R.G. Luthy, J.S. Gillette, R.N. Zare, J.W. Talley. Invited presentation and proceedings paper, ***In Situ and On-Site Bioremediation, The Fifth International Symposium***, April 19-22, 1999. San Diego, CA.

**INVITED TALKS AND SEMINARS**

1. PCB Bioremediation finally coming of age? ***Webinar organized by Jacobs***. April 2019.
2. Pollutant sources and sinks in the Anacostia River: Focus on dissolved concentrations. ***NOAA All Hands Meeting***. May, 2019.
3. New advances in passive sampling to measure freely dissolved concentrations and linking with bioaccumulation models for sediment risk assessment. ***SIREM Webinar***. October 2018.
4. New advances in passive sampling to measure freely dissolved concentrations and linking with bioaccumulation models for sediment risk assessment. Department seminar at ***George Mason University***, October 19, 2018.
5. Engineering Geochemistry in Sediments to Control Pollutant Exposure. ***University of Maryland College Park Geology Department Seminar***. September 2018.
6. Pollutant sources and sinks in the Anacostia River: Role of dissolved concentrations. ***Baltimore Urban Waters Partnership Actionable Science Workgroup PCB TMDL Technical Workshop***. September 2018.
7. In-situ remediation of contaminated sediments: Combining strong sorption with microbial dechlorination. ***NORDROCS Conference***, September 2018. The Netherlands.
8. New advances in passive sampling to measure freely dissolved concentrations and linking with bioaccumulation models for sediment risk assessment. ***International Symposium on Sediment Management,*** June 2018. Mexico.
9. Development of a novel equilibrium passive sampling strategy for methylmercury. ***Separation Science and Technology Conference***, May, 2018, India.
10. In-Situ Remediation of Contaminated Sediments. ***VA DEQ Office of Remediation Programs Workshop***. Feb 2018.
11. Use of passive samplers in pre- and post- remediation monitoring. ***Manhattan College, Institute of Water Pollution Control. Summer Institute: Water Quality Modeling: Sediment Contamination***. June 5-7, 2017.
12. New advances in managing legacy pollutants in sediments. U. Ghosh. ***Temple University, Department of Civil and Environmental Engineering, April 19, 2017***.
13. New advances in managing legacy pollutants in sediments. U. Ghosh. ***The Indian Institute of Technology, Bombay, Center for Environmental Science and Technology***. March 20, 2017.
14. Bioaugmentation – Where are we headed? U. Ghosh. ***Battelle International Conference on Remediation and Management of Contaminated Sediments. Panel on Remediation Technologies***. Jan 2017.
15. 2 talks: 1) Passive Samplers for Organic Contaminants – Practical Guidance; 2) Case Study Example 2 – Using porewater data for site-specific risk assessment: South Wilmington Wetland Case Study. ***USEPA National Association of Remedial Program Managers, 24th Annual Training Program***, May, 2016.
16. New Advances in Contaminated Sediment Remediation by Controlling Bioavailability. U. Ghosh. ***Invited webinar, Maryland Society of Professional Engineers***, April 20, 2016.
17. Porewater Concentration and Bioavailability. U. Ghosh. ***Federal Remediation Round Table, General Meeting - Recent Advances in Sediment Remediation & Characterization***. Reston, VA, May 11, 2016.
18. Federal ReEvolution of environmental sorption processes into mainstream soil/sediment remediation. U. Ghosh. ***American Chemical Society, Session in Honor of J.J. Pignatello***, Aug 22, 2016.
19. PCB reduction in fish after AC amendment to sediment. U. Ghosh. ***Society of Environmental Toxicology and Chemsitry, Europe Annual Meeting***, Barcelona, May 7, 2015.
20. New Advances in Contaminated Sediment Remediation by Controlling Bioavailability. Upal Ghosh. ***University of Delaware Civil and Environmental Engineering Department. Seminar***. 2015.
21. In-situ remediation of contaminated sediments with sorbent amendments. ***MGP Consortium annual meeting***, Niagara Falls, NY, Sep 16, 2015
22. PCB reduction in fish after AC amendment to sediment. U. Ghosh. ***Society of Environmental Toxicology and Chemistry, Europe meeting***, Barcelona, May 7, 2015.
23. Passive Sampling for the measurement of freely Dissolved contaminants in water: practical guidance. U. Ghosh. ***23rd Annual Training program of the USEPA National Association of Remedial Program Managers***. June 18, 2014. Atlanta, GA.
24. Bioavailability of mercury and methylmercury in sediments and new approaches for remediation. U. Ghosh. ***Workshop on remediation of sites contaminated with mercury in Mantova, Italy***. Oct 28, 2014.
25. Passive Sampling for the measurement of freely Dissolved contaminants in water: practical guidance. U. Ghosh. ***USEPA Risk e-learning Webinar***. Nov 19, 2014.
26. In-situ remediation: Novel approaches for controlling bioavailability. U. Ghosh. ***Taiwan EPA, Sediment Technology International Workshop***, Taipei, May 20, 2014.
27. Remediation of polluted sediments: Lessons from the past and future direction. Upal Ghosh. ***Separation Science and Technology Conference***, Feb 26, 2014, Mumbai, India.
28. Passive sampling for the measurement of freely dissolved contaminants in water: polyoxymethylene (POM). Upal Ghosh. Dec 10, 2013. ***Naval Facilities Engineering Command***. Webinar.
29. Emerging approaches for assessing pollutant sources in watersheds and novel technologies to reduce impacts on water quality. Upal Ghosh. ***Indo-Mexican Workshop on Sustainable Water and Wastewater Management***. July 25-26, 2013. National Environmental Engineering Research Institute, Nagpur, India.
30. Combining bioavailability assays with modeling to predict PCBs in fish after remediation. Upal Ghosh. ***Superfund Research Program Annual Meeting***, October 15, 2013.
31. In-situ sediment treatment: A demonstrated sediment cleanup technology. Upal Ghosh and Clay Patmont. ***Sediment Management Work Group, Contaminated Sediment Symposium***, May 8-9, Baltimore, MD 2013.
32. Secondary biological responses to Activated carbon amendment in Grasse River: Benthic community and SAV. Barbara Beckingham, Upal Ghosh, Heather VanDewalker and David Buys. ***SETAC National Meeting***, Long Beach, CA, Nov 2012.
33. Low-impact delivery of sorbent amendments to reduce contaminant bioavailability in sediments. Upal Ghosh, Seokjoon Kwon, Piuly Paul, Jeff Thomas. ***SETAC National Meeting***, Long Beach, CA, Nov 2012.
34. Combining Bioavailability Assays with Modeling to Predict PCBs in Fish after Remediation. Upal Ghosh, Hilda Fadaei Khoei, Allen Place and Aaron Watson. ***SETAC National Meeting***, Long Beach, CA, Nov 2012.
35. Monitoring the efficacy and potential environmental effects of in-situ remediation of contaminated sediments in tributaries to the Chesapeake Bay. Upal Ghosh and Charles Menzie. ***SETAC CPRC annual Meeting***, College Park, MD April 2012.
36. Sorption of priority pollutants to biochars and activated carbons for the in-situ sequestration of organics, mercury and carbon in sediments. Gomez-Eyles, J.L., C. Yupanqui, B. Beckingham, G. Riedel, C. Gilmour and U. Ghosh. ***SETAC CPRC annual Meeting***, College Park, MD April 2012.
37. Combining bioavailability assays with modeling to predict PCBs in fish after remediation. Upal Ghosh, Hilda Fadei Khoei, Aaron Watson, and Allen Place. NIEHS CLUIN Webinar. May, 2012.
38. New Advances in Contaminated Sediment Remediation by Controlling Bioavailability. Upal Ghosh. ***Opticap - tynn tildekking av forurenset sjøbunn -er det redningen for norske fjorder?*** Norwegian Geotechnical Institute, Feb 2012.
39. Polychlorinated Biphenyls in fish in the Chesapeake Bay watershed: Where do they come from and how can we reduce uptake in the food chain? U. Ghosh. ***Symposium on the Chesapeake Bay, Human Health and Eco-Toxicology. IMET***, Baltimore, MD May 2012.
40. New Advances in Contaminated Sediment Remediation by Controlling Bioavailability. Upal Ghosh. ***EPA Region 10 Sponsored Technical Workshop: Lower Duwamish Waterway Remediation***. Feb 2012. Seattle, WA.
41. New Advances in Contaminated Sediment Remediation by Controlling Bioavailability. ***Brown University Superfund Program***, Feb 2012, Brown University.
42. Low-impact delivery of sorbent amendments to reduce contaminant bioavailability in sediments. U. Ghosh. ***NIEHS Annual Meeting***, Lexington, KY. Oct. 23-25, 2011.
43. Controlling bioavailability of hydrophobic organics in soils using carbon amendments. U. Ghosh, P. Paul, and S. Fagervold. ***Fundamentals for Life: Soil, Crop, & Environmental Sciences. ASA, CSSA, SSSA International Annual Meeting***. Oct 16-19, 2011, San Antonio, TX.
44. Sorbent amendments to reduce contaminant bioavailability in sediments. U. Ghosh. ***CH2M Hill Internal Webinar***, Sep 15, 2011.
45. Alternative Methods of Sediment Remediation using Carbon Amendments. U. Ghosh. ***Manhattan College, 56th Institute in Water Pollution Control***, June 13-16, 2011.
46. New Advances in Contaminated Sediment Remediation in US and Europe. ***Indian Institute of Technology, Chennai, Department of Chemical Engineering***, August 10, 2011.
47. Partitioning and bioavailability of persistent organic pollutants in marine plastic debris. U. Ghosh and B. Beckingham. ***NOAA,*** ***International Marine Debris Conference***, Honolulu. March 24, 2011.
48. Sorbent amendments to reduce contaminant bioavailability in sediments. ***The Superfund Research Program, Risk e-Learning Web Seminar Series: Contaminated Sediments: New Tools and Approaches for in situ Remediation***. December 8, 2010
49. Activated biochars with iron for in-situ sequestration of organics, metals, and carbon. U. Ghosh and J. L. Gomez-Eyles. ***SERDP/ESTCP Annual Symposium***, Washington, DC, December 1, 2010.
50. Application of passive samplers to monitor remediation progress. U. Ghosh, ***SERDP/ESTCP Annual Symposium***, Washington, DC, December 1, 2010.
51. Low-impact delivery of sorbent amendments to reduce contaminant bioavailability in sediments. U. Ghosh. ***Superfund Research Program Annual Conference***, R01 Session, November 10, 2010, Portland, OR.
52. Emerging technologies for protecting coastal waters from pollutants delivered through storm water runoff and flux from bedded sediments. U. Ghosh***, Center for Marine Biotechnology***. Aug 10, 2010.
53. Field Evaluation of sorbent deployment methods for in-situ sediment remediation. U. Ghosh, Invited talk. ***International Network of Sediment Research***, University of Newcastle, July 6, 2010.
54. Emerging technologies for protecting coastal waters from pollutants delivered through storm water runoff and flux from bedded sediments. U. Ghosh. ***Harbin Institute of Technology***, June 8, 2010.
55. New Approaches for the Remediation of Contaminated Sediments. U. Ghosh. ***Hong Kong University of Science and Technology***, June 10, 2010.
56. Particle-Scale Measurement of PAH Aqueous Equilibrium Partitioning in Impacted Sediments. U. Ghosh. ***SETAC Asia Pacific***, Guangzhou, China, June 4-7, 2010.
57. Application of activated carbon in the remediation of PCB contaminated sediment. U. Ghosh. ***SETAC Asia Pacific***, Guangzhou, China, June 4-7, 2010.
58. Application of activated carbon in the remediation of PCB contaminated sediment. U. Ghosh. ***International PCB workshop***, Visby, Sweden, June 1, 2010
59. An overview of sediment pore water passive sampling techniques. U. Ghosh. EPA ***Contaminated Sediment Forum (CSF) Meeting. Session 2: Sampling pore water, NARPM 2010*** - Washington, D.C., Wednesday, May 26, 2010.
60. Managing tar/creosote contaminated sediments. U. Ghosh. ***EPA NARPM meeting, DNAPL session*** Tuesday, May 25, 2010.
61. In-situ Sorbent Amendments: It’s Not Just Pixie Dust. U. Ghosh. ***EPA*** ***National Association of Remediation Project Managers Annual Training Conference***. ***Contaminated Sediments: New Tools And Approaches For In-Situ Remediation Using Amendments*** May 24-27, Washington, DC, 2010.
62. In Situ Remediation with Activated Carbon:Pilot-Scale Demonstrations at Superfund Sites. U. Ghosh. ***U.S. EPA/U.S. ACE/SMWG Joint Sediment Conference***, April 13-14, 2010.
63. Polyoxymethylene (POM) passive sampling for the measurement of freely dissolved contaminants in water. U. Ghosh, B. Beckingham, R.G. Luthy, E. Janssen. ***Partners*** ***in Environmental Technology Technical Symposium and Workshop, DoD.*** Nov 30-Dec 2, 2009.
64. Field Demonstration of Activated Carbon Amendment to Sediment in a River.U. Ghosh. ***Partners*** ***in Environmental Technology Technical Symposium and Workshop, DoD.*** Nov 30-Dec 2, 2009.
65. Low-impact delivery system for in situ treatment of sediments contaminated with methylmercury. ***Department of Energy Mercury Summit***, October 22-23, 2009. Vanderbilt University.
66. Novel Application of Activated Carbon in the Remediation of PCB and DDT contaminated Sediments. ***International Activated Carbon Conference***, October 5-6, 2009, Pittsburgh, PA.
67. Transitioning Technologies to the Field: A Case Study of In-Situ Sediment Remediation, ***Department of Geography and Environmental Engineering Seminar, The Johns Hopkins University***, October 1, 2009.
68. Emerging technologies for protecting coastal waters from pollutants delivered through storm water runoff and flux from bedded sediments. ***Keynote talk at the World Water Week, session on Protecting Coastal Waters.*** Stockholm, August 2009.
69. Emerging technologies for protecting coastal waters from pollutants delivered through storm water runoff and flux from bedded sediments. ***Center for Marine Biotechnology Seminar***, August 2009.
70. Effect of sorbent particles on the bioaccumulation of persistent organic pollutants in sediments. U. Ghosh. ***International Research Workshop on the Occurrence, Effects and Fate of Microplastic Marine Debris***. NOAA, University of Washington, Tacoma, WA. Sep 9-10, 2008.
71. New advances in sediment remediation: Reducing Contaminant Bioavailability. U. Ghosh. ***ERM’s Problem Site Series: Contaminated Sediment Strategies.*** October 30, 2008, Princeton, New Jersey
72. Remediation of Contaminated Sediments: Current Challenges and Emerging Technologies. U. Ghosh. ***Center for Environmental Science and Engineering, Indian Institute of Technology***, Bombay, India. July 29, 2008.
73. In-situ Remediation Update: PCB Bioavailability Reduction in Sediments Using Activated Carbon Amendment. Upal Ghosh. ***Sediment Management Workgroup Annual Meeting***, New Orleans, Jan 8-9, 2008.
74. Measuring PCB-bioaccumulation from sediment before and after activated carbon amendment. Xueli Sun, David Werner and Upal Ghosh. ***Connecting people - Linking the fundamental concepts of sediment pollution remediation and ecotoxicity for improved engineering designs***. School of Civil Engineering and Geosciences, University of Newcastle upon Tyne, Nov 1, 2007.
75. Predicting the Bioaccumulation of PCBs Using Direct Measurements of Contaminant Bioavailability. U. Ghosh, K. McDonough. ***Sediment Contaminant Bioavailability Alliance Meeting***. Baltimore, MD Sep 19, 2007.
76. In-situ sediment remediation: grasse river pilot study. U. Ghosh. ***Workshop on Sediment Remediation***, University of Newcastle upon Tyne, Aug 6-7, 2007.
77. In-situ reduction of contaminant bioavailability in sediments. U. Ghosh. ***EPA Region II BTAG Meeting***, New York, NY. May 23, 2007.
78. In-situ PCB Bioavailability Reduction in Sediments: Fundamental Laboratory Investigations to Field Studies. U. Ghosh, X. Sun, B. Beckingham, and A. Grossman. ***Fourth International Conference on Remediation of Contaminated Sediments***. Savannah, GA. Jan 22-25, 2007.
79. Effect of Activated Carbon on PCB Bioavailability reduction in L. variegatus and E. fetida. U. Ghosh, X. Sun, and Piuly Paul. ***Fourth International Conference on Remediation of Contaminated Sediments***. Savannah, GA. Jan 22-25, 2007.
80. Nature of Organic Carbon in MGP Sediments: A Mechanistic Understanding of PAH Bioavailability. U. Ghosh1, M.F. Khalil1, S. Hawthorne, and J.P. Kreitinger. ***Fourth International Conference on Remediation of Contaminated Sediments***. Savannah, GA. Jan 22-25, 2007.
81. PCB Bioavailability Reduction with Activated Carbon Amendment in River Sediments: Lab and Field Studies. U. Ghosh. ***A Symposium on Alternative Remedial Technologies to Destroy PCBs. The Housatonic River Initiative***. Nov 17, 2006, Pittsfield, MA.
82. In-situ PCB Bioavailability Reduction in Sediments: Fundamental Laboratory Investigations to Field Studies. ***Seminar, University of New Hampshire, Dept of Civil and Environmental Engineering***. Oct 6, 2006.
83. Use of Particle Scale Characterization of Contaminant Location and Binding in Environmental Forensics. U. Ghosh. ***Environmental Forensics: Urban Ports & Harbors - Sediment Assessments in Complex Systems, International Society of Environmental Forensics***. Sep 26-27, 2006. Baltimore, MD.
84. PCB Bioavailability Reduction with Activated Carbon Amendment in River Sediments: Lab and Field Studies. U. Ghosh. ***International Workshop at Norwegian Geotechnical Institute: “Novel Insights on Contaminated Sediments: Relevance for Risk and Remediation.”*** Sep 12, 2006, Oslo, Norway.
85. A New In-Situ Approach for Contaminant Bioavailability Reduction. Invited Seminar, ***Dow*** ***Chemical Company***, ***Toxicology & Environmental Research Laboratory*** Midland, MI, June 1, 2006.
86. Effect of Different Modes of Activated Carbon Addition to Sediments on PCB Biouptake in Lumbriculus Variegatus. X. Sun and U. Ghosh. ***Society of Environmental Toxicology and Chemistry, Europe Meeting***, The Hague. May, 2006.
87. Taking Fundamental Studies to Technology Development: Particle-Scale Sorption to In-Situ Bioavailability Control. U. Ghosh. Seminar, ***Norwegian Geotechnical Institute***. Oslo, Norway. Feb, 2006.
88. Fundamental Understanding at the Particle Scale of Organic Contaminant Association, Desorption Rate, and Equilibrium Partitioning in Sediments. U. Ghosh, M.F. Khalil, S. Hawthorne, J.P. Kreitinger. ***Society of Environmental Toxicology and Chemistry, Europe Meeting***. Lille, France, May 23, 2005.
89. Fundamental Understanding at the Particle Scale of PAH Desorption Rate and Equilibrium Partitioning in MGP Sediments. U. Ghosh, S. Hawthorne, J.P. Kreitinger. ***Natural National Gas Technologies III Conference***. Orlando, FL, Feb 1, 2005.
90. In Situ Contaminant Bioavailability Reduction in Sediments: Laboratory Studies and Field Demonstration. U. Ghosh. ***Chesapeake Bay Regions of Concern Information and Technical Exchange, Chesapeake Bay Program Toxics Subcommittee***. Washington, DC. Nov 9, 2004.
91. A New Tool For In Situ Contaminant Bioavailability Reduction in Sediments: Laboratory Studies to Field Trial. U. Ghosh. ***Department of Environmental Sciences, Rutgers University***, October 8, 2004.
92. Effect of Sediment Geochemistry on the Partitioning of Polycyclic Aromatic Hydrocarbons. M.F. Khalil and U. Ghosh. ***8th International Estuarine Biogeochemistry Symposium***, Solomons, MD. May 16-20, 2004.
93. Microscale association of organic contaminants to sediment particles and implications for environmental risk management. U. Ghosh. ***Chemistry and Biochemistry Department, University of Maryland College Park***. April 16, 2004.
94. Microscale association of organic contaminants to sediment particles and implications for environmental risk management. U. Ghosh. ***Civil and Environmental Engineering Department, Lehigh University***. April 9, 2004.
95. In Situ Stabilization of Persistent Organic Contaminants in Sediments Using Activated Carbon. U. Ghosh, R.G. Luthy, J.R. Zimmerman, P. Mcleod, R. Milward, T.S. Bridges. ***Technology Benchmarking Workshop for Sediment and Floodplain Remediation***. University of Michigan, Ann Arbor, MI, March 25-26, 2004.
96. In Situ Bioavailability Reduction of PCBs in Sediments: From Bench-scale to Field Demonstration. U. Ghosh, R.G. Luthy, J.R. Zimmerman, M. Heuvel-Greve, P. Mcleod, R. Milward, T.S. Bridges. ***Remediation Technology Development Forum, Sediment Remediation Action Team Meeting***, Baltimore, MD, February 18-19, 2004.
97. PAH Distribution Among Organic Matter Types in Contaminated Sediments and Effects on Bioavailability, U. Ghosh, J.R. Zimmerman, L. Hong, and R.G. Luthy. ***Natural Gas Technologies II Conference***, Phoenix, AZ, Feb 8-11, 2004.
98. Contaminant-Sediment Interactions at the Particle-Scale: Implications for Risk Assessment and Remediation. U. Ghosh. ***SERDP Annual Symposium***: Partners in Environmental Technology Technical Symposium and Workshop, Dec 2, 2003.
99. PCB Bioavailability Reduction in Sediments Using Activated Carbon: A New Remediation Tool. U. Ghosh. ***Chesapeake Biological Laboratory***, Solomons, MD, Oct 2, 2003.
100. PAH Speciation Among Particle Types in Contaminated Soil/Sediment and Effects on Bioavailability. U. Ghosh, L. Hong, R.G. Luthy. ***EPRI MGP 2003 Forum***, Denver, CO, June 17-19, 2003.
101. Microscale Association of Organic Contaminants to Sediment Particles and Implications for Risk Management. U. Ghosh. ***Department of Geography and Environmental Engineering, Johns Hopkins University***. February 25, 2003.
102. Bioavailability Control and In-situ Stabilization of Contaminated Sediments using Carbon Sorbents. U. Ghosh, ***Remediation Technology Development Forum***, Sediments Remediation Action Team Meeting, Seattle, WA, October 29-30, 2002.
103. Characterization of PAHs in Lampblack Impacted Soils: Microscale Location and Assessment of Sorption Mechanism. L. Hong, U. Ghosh, R.G. Luthy. ***Gas Technology Institute Meeting***, April 4-5, 2002, Syracuse, NY.
104. Sequestration of PCBs and PAHs in Sediments: Lessons from Natural Processes and New Ideas for Restoration. U. Ghosh, et al., ***Electric Power Research Institute Advisors Meeting***, March 13, 2002, San Francisco, CA.
105. In-Situ Stabilization of PCBs and PAHs: Lessons from Natural Processes and New Ideas for Remediation. U. Ghosh, ***Navy’s Risk Assessment Workgroup Meeting***, USEPA Region 9, San Francisco, Dec 4, 2001.
106. Microscale Investigation of Location and Association of Organic Pollutants in Soils and Sediments. U. Ghosh, R.G. Luthy. ***Infrared Spectromicroscopy Workshop***, Advanced Light Source, Lawrence Berkeley National Laboratory, Oct 15-17, 2001.
107. Long-term Passive PCB/PAH Bioremediation Following Active Land Treatment. U. Ghosh, J.R. Smith, M. Mitraka, J.V. Fleckeinstein, and A.S. Weber. ***In Situ and On-Site Bioremediation, 6th International Symposium***, June 4-7, 2001, San Diego, CA.
108. Natural Fate of PAHs in Sediments. U. Ghosh, R.G. Luthy, J.W. Talley, R.N. Zare. ***Remediation Technology Development Forum***, Sep 12-13, 2000, Wilmington, DE.
109. Kinetics and Thermodynamics of PAH Release from Sediment Particles. U. Ghosh, R. G. Luthy, and J.W. Talley. ***American Chemical Society 220th National Meeting****,* Symposium on Sequestration of Organic Solutes in Natural Organic Matter and Mineral Aggregates, Washington, DC, Aug 2000.
110. Microscale location and association of PAHs in sediment particles and effect on treatment and bioavailability. U. Ghosh, R.G. Luthy, J.S. Gillette, R.N. Zare, J.W. Talley, S. Tucker. Best poster award and invited talk at the ***Gordon Research Conference, Environmental Sciences: Water***, June 25-30, 2000.
111. Use of Synchrotron IR Microspectroscopy for Environmental Engineering Research. U. Ghosh, and R.G. Luthy. Invited presentation, ***IR Microspectroscopy Workshop***, May 26, 1999, National Synchrotron Light Source, Brookhaven National Laboratory.

**OTHER CONFERENCE PRESENTATIONS (stopped updating in 2012)**

1. Evaluating the efficacy of bioaugmentation for in-situ treatment of PCB impacted sediments. Kevin R Sowers, Rayford B. Payne, Upal Ghosh and Harold D May. ***Battelle International Conference on Remediation of Chlorinated and Recalcitrant Compounds***. Monterey, CA, 21-24 May 2012.
2. Remediation of Hg‐contaminated Sediments with Activated Carbon. ***The 10th International Conference on Mercury as a Global Pollutant (ICMGP)***, Halifax, Canada, July 26, 2011
3. PCB Bioavailability Reduction in Freshwater Sediments Using Activated Carbon Amendment. Barbara Beckingham, Xueli Sun, Adam Grossman, Jennifer Jerscheid, and Upal Ghosh. ***Fifth International Conference on Remediation of Contaminated Sediments***. February 2-5, 2009.
4. Linking Sediment Geochemistry with PCB Biouptake in a Freshwater Oligochaete through Laboratory Measurements and Modeling. U. Ghosh, X. Sun, D. Werner.  ***Fifth International Conference on Remediation of Contaminated Sediments***. February 2-5, 2009.
5. Development of a multifunctional amendment for sediment contaminated with metals and PCBs. S. Kwon, U. Ghosh, C. Gilmour. ***International Network for Sediment Research***, May 2009, Newcastle, UK.
6. Bioavailability reduction of PCBs after pilot-scale amendment of activated carbon to river sediments. B. Beckingham, U. Ghosh, ***International Network for Sediment Research***, May 2009, Newcastle, UK.
7. Bioavailability reduction of PCBs after pilot-scale amendment of activated carbon to river sediments. B. Beckingham, U. Ghosh. ***SETAC Europe***, May 31- June 4 2009, Goteborg, Sweden.
8. Evaluating Dissolved PCB Releases from Contaminated Sediments Amended with Activated Carbon. Upal Ghosh, ***SETAC North America***, Tampa, FL, 2008.
9. Modeling PCB mass transfer and bioavailability after amendment of contaminated sediment with activated carbon. (poster) D. Werner, U. Ghosh, R.G. Luthy. ***Society of Environmental Toxicology and Chemistry, Europe Meeting***, The Hague. May, 2006.
10. Abundance and diversity of aerobic and anaerobic pcb degrading bacteria in contaminated soil. Kjellerup, B.V., Ghosh, U., Paul, P., Shirtliff, M.E., May, H., Sowers, K.S. ***11th International Symposium on Microbial Ecology, International Society for Microbial Ecology***, August 20-25, 2006, Vienna, Austria.
11. Distribution, Activity and Diversity of PCB dechlorinating *Chloroflexi* in Sediment by Competitive PCR, Activity Assays and Denaturing High-Performance Liquid Chromatography. Kjellerup, B.V., Ghosh, U., Shirtliff, M.E., May, H., Sowers, K.S. ***American Society for Microbiology*** ***Meeting***, May 21-25, 2006, Orlando, FL.
12. PCB Bioavailability Control in Lumbriculus Variegatus Under Different Modes of Granular Activated Carbon Addition to Sediments (student poster). X. Sun and U. Ghosh. ***Society of Environmental Toxicology and Chemistry, N. America, Conference***. Baltimore, November, 2005.
13. Distribution and diversity of dechlorinating Chloroflexi in marine and fresh water sediments by Competitive PCR (cPCR) and Denaturing High-Performance Liquid Chromatography (DHPLC). Kjellerup, B.V., Fagervold, S. Shirtliff, M.E., May, H., Ghosh, U., Sowers, K.S. (Poster) ***Society of Environmental Toxicology and Chemistry, N. America, Conference***. Baltimore, November, 2005.
14. Role of black carbon and other forms of carbon on the partitioning of PAHs in MGP sediments. U. Ghosh, M.F. Khalil. ***ACS National Meeting***, Washington DC. Aug 2005.
15. Use of Caffeine to Identify and Quantify Wastewater Contamination in Urban Streams. (Poster) P. Chumble, J. Zhao, R. Pouyat, K. Belt, and U. Ghosh. ***Maryland Water Monitoring Council 10th Annual Conference***, Baltimore, MD, Nov 18, 2004.
16. Use of Caffeine to Identify and Quantify Wastewater Contamination in Urban Streams. (Paper) P. Chumble, J. Zhao, R. Pouyat, K. Belt, and U. Ghosh. ***Baltimore Ecosystem Study, Sixth Annual Meeting***, Baltimore, MB, October 21-22, 2004.
17. Adsorption Kinetics and Equilibrium Partitioning of PCBs in Coal, Coke, and Activated Carbon. (Paper) A. Afzal and U. Ghosh. ***American Chemical Society National Meeting, session on Advances in Environmental Reaction Kinetics and Thermodynamics***, Philadelphia, PA, Aug 22-26, 2004.
18. PCB Mass Removal from Contaminated Sediments Using Retrievable Magnetic Activated Carbon. (Paper) N. Tagoe, S. Duyvesteyn, and U. Ghosh. ***American Chemical Society National Meeting, session on PCBs in Freshwater and Marine Sediments.*** Philadelphia, PA Aug 22-26, 2004.
19. Caffeine: A Marker for Wastewater Contamination in Urban Streams From Leaking Sewers. (Poster) P. Chumble and U. Ghosh. ***Gordon Research Conference, Environmental Sciences: Water***. Aug 2004.
20. PCB and PAH Speciation Among Particle Types in Contaminated Sediments and Effects on PAH Bioavailability (Paper). U. Ghosh, J. R. Zimmerman, R. G. Luthy. ***IAGLR/ILEC 2003 Session on Contamination and Remediation of Urban Environments***, Chicago, June 26,2003.
21. In Situ Stabilization of Persistent Organic Contaminants in Sediments (Paper). U. Ghosh, J. R. Zimmerman, P. McLeod, R. G. Luthy, R. Milward, T. Bridges***. IAGLR/ILEC 2003 Session on Advances in Assessment and Remediation of Contaminated Sediments***, Chicago, June 23, 2003.
22. PCB and PAH Speciation Among Particle Classes in Sediment: Effect on Biological Treatment. (Poster) U. Ghosh, J.R. Zimmerman, J.W. Talley, R. G. Luthy. ***Gordon Research Conference, Environmental Sciences: Water***, June 23-28, 2002.
23. Long-term Passive PCB/PAH Bioremediation Following Active Land Treatment. (Paper) U. Ghosh, J.R. Smith, M. Mitraka, J.V. Fleckeinstein, and A.S. Weber. ***In Situ and On-Site Bioremediation, 6th International Symposium***, June 4-7, 2001, San Diego, CA.
24. Kinetics and Thermodynamics of PAH Release from Sediment Particles. (Paper) U. Ghosh, R. G. Luthy, and J.W. Talley. ***American Chemical Society 220th National Meeting****,* Symposium on Sequestration of Organic Solutes in Natural Organic Matter and Mineral Aggregates, Washington, DC, Aug 2000.
25. Effect of Land Biotreatment on PCB leachability and Risk from Field Contaminated Sediments. (Paper). ***SETAC 19th Annual Meeting***, 15-19 Nov, 1998, Charlotte, NC.
26. Assessment and Prediction of Biostabilization of PAHs in Sediments. (Poster) ***Strategic Environmental Research and Development Program (SERDP) Annual Symposium and Workshop***, Dec 1-3, 1998, Arlington, VA.
27. Effect of Land-biotreatment on PCB desorption and Leaching. (Poster) ***Gordon Research Conference, Environmental Sciences: Water***, June 14-19, 1998, Henniker, NH.
28. Determining Environmentally Acceptable Endpoints for Contaminated Soils. (Paper). ***American Chemical Society symposium on Emerging Technologies in Hazardous Waste Management IX***, September 15-17, 1997, Pittsburgh, PA.
29. Influence of PCB Desorption Kinetics on Bioremediation and Mobility Risk. (Paper). ***29th Mid-Atlantic Industrial and Hazardous Waste Conference***, Roanoke, VA, July, 1997.
30. A Tool for Determining Environmentally Acceptable Endpoints for PCBs in Soils. (Poster) ***AWMA’s 90th Annual Meeting and Exhibition***, Toronto, CA, June, 1997.
31. Environmentally Acceptable Endpoints for PCBs in Soils and Sediments. (Paper) ***Great Lakes Research Consortium Conference***, Syracuse, NY, February, 1997.
32. Modeling Desorption of PCBs from Contaminated Soils. (Paper) ***Environmental Engineering Students Conference***, Gananoque, Canada, 1996.
33. Modeling 3-Chlorobenzoic Acid Biodegradation in Batch and Continuous Culture. (Poster) ***Environmental Engineering Students Conference***, Gananoque, Canada, 1992.

**TEACHING**

* Instructor, Heat and Mass transfer (ENCH 427) Spring 2016 and 2017, CBEE, UMBC
* Co-Instructor. Senior Design, Spring 2014, 2015.
* Instructor: “Biological Treatment Processes”, Fall 2003-2016. 2019. CEE/CBEE, UMBC.
* Instructor: “Advanced Environmental Analytical Techniques”, Fall, 2006, CEE, UMBC.
* Instructor, “Environmental Risk Assessment and Remediation” Spring 2004-2015, 2019. CBEE UMBC (co-taught with Dr. Menzie in 2006 and 2007).
* Instructor: "Analytical Techniques to Separate, Identify, and Quantify Environmental Organic Compounds", Fall 2000, CEE, Stanford University.
* Freshman academic advisor at Stanford University responsible for advising six freshmen.
* Teaching Assistant at University at Buffalo (9/90 - 8/92)

**ADVISING**

**Post Doctoral Research Associates at UMBC:**

1. Dr. Songjing Yan, Feb 2019 – present (supported on grants)
2. Dr. Nathalie Lombard, Sep 2016 – present (supported on grants)
3. Dr. Son Trinh, May- Aug 2016, visiting from Newcastle University, self supported.
4. Dr. Yanmei Zhou, June 2012- May 2013. Supported by China Scholarship Council.
5. Dr. Natasha Andrade, Jan 2013-Dec 2013. (supported on grants)
6. Dr. Jose Gomez-Eyles, Jan 2011-Dec 2014. (supported on grants)
7. Dr. Seokjoon Kwon, January 2006-December, 2011. (supported on grants)
8. Dr. Sonja Fagervold, March 2007 – October, 2008. (supported on grants)

**Graduate students advised and supported at UMBC:**

1. Jada Dammond, CBEE, BS-MS student
2. Sarahana Joshee, CBEE, BS-MS student
3. Oindrila Ghosh, CBEE, Sep 2018, Ph.D. student
4. Ryan Wyatt, CBEE, Jan 2017, M.S. student.
5. Mandar Bokare, CBEE, Oct 2016, Ph.D. student. Fate and transport of PCBs in Anacostia River.
6. Trevor Needham, CBEE, Jan 2014-Feb 2019. Ph.D. student. Enhancing biodegradation of PCBs in sediments. Working at USGS.
7. Eli Patmont, CBEE, Fall 2014 – Spring 2016. M.S. student. Field measurement and assessment of remedy performance at Mirror Lake, DE. Working at Anchor QEA.
8. James Sanders, CBEE, Fall 2012 – Spring 2018, Ph.D. student. Bioavailability of mercury and methylmercury. Working at USEPA.
9. Meheregan Jalijadeh, CBEE, Jan 2012 -Summer 2017, Ph.D. student. Measuring and modeling pollutant diffusion in passive samplers. Working at Geosyntec.
10. Hilda Fadei Khoei, CBEE, UMBC, Fall, 2011- Spring 2017, Ph.D. student. PCB biouptake measurement and modeling in fish. Expected to graduate in summer 2017. Working at Arcadis
11. Xia Huan, CBEE, UMBC, Fall, 2011 – Summer 2017, Ph.D. student. PAH bioavailability in soils. Working at Langan.
12. Shanna Ratnesar-Shumate, Fall 2010 – Fall 2015, Ph.D. Environmental factors affecting the meausurement of the physical and chemical properties of aerosolized biological particles. Working at Avdanced Physics Lab.
13. Carmen Yupanqui, CBEE, UMBC, Fall, 2011. Ph.D. student. Quit Ph.D. program due to performance and personal reasons. Working for Chile Govt Regulatory Agency.
14. Cristina Cardona, MEES, UMBC, Started Spring 2009, Ph.D. student. Quit Ph.D. program due to health reasons.
15. Chirayu Joshi, CEE, UMBC, Started Spring 2008, M.S. student. Research on DDT bioavailability control in sediments. Working at ERM.
16. Bo Wang, CEE, UMBC, Started Spring 2008, M.S. student. Performing research on assessing PCB levels in fish caught in Maryland and relating to passive sampling measurements in the field. Now doing Ph.D. at Wright State University.
17. Phil Gidley, CEE, UMBC, Started Fall, 2006. Ph.D. student. Performing experimental and modeling research on PAH biodegradation and transport through amended sediment caps under groundwater flow and tidal pumping. Research Engineer at USACE ERDC.
18. Barbara Beckingham, CEE, UMBC, Started Fall, 2006. Ph.D. student. Performing research on field measurement of PCB biouptake in benthic organisms through caged organism studies and passive biouptake studies. Research faculty position at Tuebingen University, now faculty at College of Charleston.
19. Piuly Paul, CEE, UMBC, Started Spring, 2006, Ph.D. student. Effect of in-situ remediation on aerobic and anaerobic degradation of PCBs in sediment. Quit Ph.D. program due to health and personal reasons.
20. Jennifer Jerschied, UMBC, Started Spring, 2007, M.S. student. Assessing in-situ treatment effectiveness through laboratory measurement of PCB bioavailability. Working in environmental consulting.
21. Jeff Thomas, CEE, UMBC, Completed M.S. Spring 2009. Development of engineered materials for the in-situ remediation of contaminated sediments. Working at Lockheed Martin.
22. Adam Grossman, CEE, UMBC, Completed M.S. Fall, 2008. Development of black carbon measurement tools for the quantification of activated carbon in sediments. Working at US Navy.
23. Xueli Sun, CEE, UMBC, Completed Ph.D. Spring, 2008. Research on measuring & modeling PCB biouptake pathways in the freshwater oligochaete *Lumbriculus variegatus*. Working in environmental consulting.
24. Katie DiBlasi. CEE, UMBC, Completed MS, Fall 2007. Effectiveness of best management practices of street sweeping and inlet cleaning on storm water quality in Baltimore City. Currently employed at USACE.
25. Mohammed F. Khalil. Completed M.S., 2005. Currently working as an Environmental Engineer in AMEC Canada. Thesis research was on mechanistic investigations of PAH partitioning in MGP sediments.
26. Jason Zhao. CEE, UMBC. MS thesis advisor. Could not complete MS for personal reasons, Currently working as an engineer in the Baltimore area. Worked on a storm water management project.

**Graduate students mentored at Carnegie Mellon University and Stanford University:**

1. Shawn McNamara, CMU, Ph.D. completed in 2000. Ph.D. advisor: R.G. Luthy. Currently working for Quantitative Environmental Associates, NJ.
2. Jeffrey W. Talley, CMU, Ph.D. completed in 2000. Ph.D. advisor: R.G. Luthy. Currently associate professor at University of Notre Dame.
3. John Zimmerman, Stanford University, Ph.D. completed in 2005. Ph.D. advisor: R.G. Luthy. Currently working for Environ Corp, VA.
4. Lei Hong, Stanford University, Ph.D. completed in 2006. Ph.D. advisor: R.G. Luthy. Currently working for Bechtel, CA.

**Other graduate student committees:**

1. Ciara Pittman, Ph.D. committee member, Department of Chemistry, UMBC
2. Srinu Nagireddy, Ph.D. external committee member, IIT Guwahati, India
3. Siddhi, S. Ph.D. external committee member, IIT Delhi, India
4. Alana Yang, Ph.D. external committee member, University of Waterloo
5. Priyanshu Verma, Ph.D. external committee member, IIT Patna, India
6. Kristen M. Prossner, Ph.D. external committee member, Virginia Institute of Marine Sciences.
7. Kulkarni V. Vijaykumar, Ph.D. external committee member, IIT Guwahati, India
8. P.K. Verma, Ph.D. external committee member, Bhabha Atomic Research Center, India
9. Ding Kai, Ph.D. external committee member, Villanova Univ.
10. Deepak Gola, Ph.D. external committee member, IIT Delhi, India
11. Aparna Balasubramani, Ph.D. external committee member, Univ of Houston.
12. Michael Battaglia, Ph.D. Committee member, CBEE (Advisor: Chris Hennigan)
13. Kiranmayi Mangalgiri, Ph.D. committee member. CBEE, (Advisor: L. Blaney)
14. Marwa El-Sayed, Ph.D. Committee, CBEE (AdvisorL C. Hennigan)
15. Aditi Bhaskar, Ph.D. Committee member, CBEE (Advisor: C. Welty)
16. Alimatou Seck, Ph.D. Committee member, CBEE (Advisor: C. Welty)
17. Shanna Ratnesar-Shumate. Ph.D. Committee chair. CBEE, UMBC (primary advisor J. Santarpia)
18. Zachary Hopkins, M.S. Committee member, CBEE (Advisor: Lee Blaney)
19. John Bendick, Ph.D. Proposal defense committee member. CEE, UMBC. (Advisor: B. Reed)
20. Sangeeta V. Sharma, Ph.D. external examiner, Indian Institute of Technology, Bombay, India.
21. Kate Gillipse, Ph.D. committee, Center for Marine Biotechnology.
22. Amy P. Oen, University of Oslo, Norway, Defended Feb, 2006, Ph.D. Committee Member and Opponent.
23. Susan L. Klosterhaus, MEES, Chesapeake Biological Lab, Ph.D. Committee Member.
24. Abbey Schnider, MEES, Chesapeake Biological Lab, defended Fall 2005. Ph.D. Committee Member.
25. Devin P. Winnington. Department of Chemistry and Biochemistry, UMBC. Ph.D. Committee Member.
26. Angela Keane. Dec 2003. Department of Civil and Environmental Engineering, McGill University, Montreal, CA. Ph.D. Thesis External Examiner.
27. Leticia Alonso Bernardez. Nov 2004. Department of Civil and Environmental Engineering, McGill University, Montreal, CA. Ph.D. Thesis External Examiner.
28. Taeko Minegishi. Chesapeake Biological Laboratory. M.S. Thesis committee member.
29. Laura LeMiere. CEE, UMBC, Ph.D. committee member
30. Alicia Alba, CEE, UMBC, M.S. committee member. Graduated in 2006.

**Undergraduate research assistants employed on research projects:**

1. Lewis Cheung, BS Chemical Engineering (2018 – present)
2. Taylor Stephen, BS Chemical Engineering (2018 – present)
3. Jada Dammond, BS Chemical Engineering (2017-2018)
4. Adam Haj Ahmad, BS Chemical Engineering (2017-2018)
5. Robin Sevell, BS Chemical Engineering (2017-2019)
6. Varapapa Thodpanich BS Chemical Engineering (1/2016 – present)
7. Samuel Magee, BS Chemical Engineering (6/2016 – present)
8. Mahedi Saavy, BS. Chemical Engineering (2015-2016)
9. Larynette Ndah, BS Chemical Engineering (2015-2016)
10. Laura Satterfield, BS Chemistry (2014-2015)
11. Dongxue Li, BC Chemical Engineering (2013-2014)
12. Brianna Trankle, BS Chemical Engineering (1/2011 – 2012)
13. Jay Richards, BS, Chemical Engineering (1/2010 – 6/2011)
14. Kirby Hawkins, BS, Chemical Engineering (1/09 – 12/10)
15. Ishani Roy, MS Statistics (2009-2010)
16. Neil Agarwal, BS, Chemical Engineering, (1/07 – 5/09)
17. Ryan Green, BS Chemistry and Biochemistry. (1/2007 – 12/2007)
18. Galina Madjaroff, B.S. Geography and Env Sys. (6/06 – 6/07)
19. Adam Grossman, BS. Geography and Env Sys. (5/06 – 8/06), joined MS in CEE in fall 2006
20. Jeff Thomas, BS. Chemical Engineering. (3/06 – 8/06), joined MS in CEE in fall 2006
21. Ajit Ajayaghosh, BS, Chemical Engineering. (1/06 – 6/06)
22. Nii Tagoe, BS, Chemical Engineering. (6/03 - 8/05)
23. Prasad Chumble, BS, Biochemistry. (6/03 – 12/05)
24. Ahsan Afzal, BS, Biochemistry. (6/03 - 10/04)
25. Wallace Gladden, BS, Chemistry and Myerhoff scholar. (6/02 - 9/02)
26. Clifton Harris, BS, Chemical Engineering and MARC scholar. (10/03 – 12-04)

**UNIVERSITY AND DEPARTMENTAL SERVICE**

* UMBC Research Task Force, 2019.
* Chair, Contract Renewal, Assistant Professor, Peng Xu 2018
* Chair, CBEE Branding committee, development of new logo for CBEE. 2017-2018
* CBEE Seminar coordinator, 2017 – present
* CBEE Grad Program Committee member
* Chair, P&T Committee, Lee Blaney, 2016
* Committee member, Contract renewal for Josh
* Committee Member Post Tenure Review: G. Rao
* UMBC Strategic Plan Proposals reviewer 2016
* MIPS proposal reviewer, 2016
* Interdisciplinary Life Science Building, Environmental Systems advisory committee (2015)
* UMBC Research Council (2015 Spring)
* OSP Director Search Committee member 2015
* Institute of Marine and Environmental Technology Committee member: 1) to help shape the Strategic Direction of IMET, 2) identify areas for new hires, and 3) serve in the first IMET Faculty Search
* CBEE faculty search committee co-chair (2010, 2011. 2015 hires)
* CBEE Graduate Program Director for Environmental Engineering (Fall 2011 – 2014)
* Interdisciplinary Life Science Building, Environmental Systems Lab planning group (2011-present)
* CEE Graduate Program Director (Fall 2005 – 2010)
* UMBC Faculty Senate Member (Fall 2005 – Spring 2009)
* CEE Library Liaison (Fall 2005 – 2010)
* Faculty mentor, Engineers Without Borders, UMBC.
* CEE course scheduling coordinator (Fall 2005 – present)
* Chair, Graduate Admissions Committee for MEES Environmental Chemistry Area of Specialization. (2006- 2008)
* Planned and coordinated the renovation of the new Civil and Environmental Engineering Laboratories in the Technology Research Center.
* Development and maintenance of the CEE website

**PROFESSIONAL SERVICE**

* Associate Editor, Environmental Toxicology and Chemistry journal (2015 onwards)
* Associate Editor, Envirowiki. [www.enviro.wiki](http://www.enviro.wiki)
* USEPA Chesapeake Bay Program Toxics Committee member (2014-present)
* Association of Environmental Engineering and Science Professors, Newsletter Editor (2011-2014)
* Interstate Technology and Regulatory Council. Contaminated Sediments Team Member (2012).
* Steering committee member and workgroup leader: SETAC Pellston Workshop on Passive Sampling Methods (2012)
* Conference/workshop chair/panel member: (not full list)
* Session Chair, Battelle International Conference on Remediation and Management of Contaminated Sediments, Session C8: Understanding Chemistry of In Situ Treatment Amendments. Jan 2017.
* Session Chair, SETAC North America 37th Annual Meeting / 7th SETAC World Congress , November 5-10 in Orlando. Session: Activated Carbon as a Remedial Alternative for Management of Risks in Contaminated Sediments, 2016
* Session Chair, Bioavailability of Contaminants, 6th International Conference on Remediation of Contaminated Sediments, New Orleans, Feb 7-10, 2011.
* Session Chair, Seventh International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, California; May 24-27, 2010.
* Panelist, National Institutes of Environmental Health Sciences, Superfund Research Program Strategic Planning update to congressional staffers, Rayburn House Office Building, Capitol Hill. Jan 14, 2010.
* Steering Committee Member and Session Chair, Fifth International Conference of Contaminated Sediments, Jacksonville, FL, 2009.
* Session Chair, Society of Environmental Toxicology and Chemistry National Meeting, Nov 2008, Tampa FL
* Session Chair, Fourth International Conference on Remediation of Contaminated Sediments. Savannah, GA. Jan 22-25, 2007.
* Rapporteur and author of final report, SERDP and ESTCP Expert Panel Workshop on Research and Development Needs for the In Situ Management of Contaminated Sediments. October 2004.
* Panelist, Technology Benchmarking Workshop for Sediment and Floodplain Remediation. University of Michigan, Ann Arbor, MI, March 25-26, 2004.
* Water Environment Federation Literature Review Committee member and author of section on ‘Aquatic Sediments’, 2002-2007.
* Task force member of Treatise on Sediment Quality, and member of the Technical Practice Committee, Water Environment Federation.
* Peer reviewer for: Procedures for USEPA Guidance Document titled: “Derivation of Site-Specific Equilibrium Partitioning Sediment Benchmarks (ESBs) for the Protection of Benthic Organisms: Nonionic Organics.”
* Journal reviewer for:
* Environmental Science and Technology
* Environmental Toxicology and Chemistry
* Journal of Contaminant Hydrology
* Bioremediation Journal
* Water Environment Research
* Journal of Environmental Quality
* Environmental Engineering Science
* Journal of the Great Lakes Research
* Critical Reviews in Environmental Science & Technology
* Chemosphere
* Water, Air, and Soil Pollution
* The Science of the Total Environment
* Environmental Science and Pollution Research
* ASCE Journal of Environmental Engineering
* Journal of Hazardous Materials
* Journal of Soils and Sediments
* Ecotoxicology and Environmental Safety
* International Journal of Environmental Analytical Chemistry
* Soil and Sediment Contamination An International
* Bulletin of Environmental Contamination and Toxicology
* Research Proposal Reviewer for:
* National Institutes of Health
* National Science Foundation
* US EPA
* Research Grants Council of Hong Kong
* AAAS Research Competitiveness Program for King Abdulaziz City for Science and Technology
* Engineering and Physical Sciences Research Council, United Kingdom
* U.S. Department of State, International Science and Technology Center (ISTC)
* NOAA/UNH Cooperative Inst. for Coastal and Estuarine Env. Tech.
* Ohio Sea Grant College Program
* New York Sea Grant program
* New Mexico Water Resources Research Institute
* Petroleum Research Fund
* Wisconsin DNR
* University of Maryland Baltimore, Seed Grant Program
* UMBC Research Fellows Program
* Professional memberships:
* American Chemical Society, Division of Environmental Chemistry
* Water Environment Federation
* Association of Environmental Engineering and Science Professors
* Society for Environmental Toxicology and Chemistry
* Americal Society of Civil Engineers
* Ph.D. Thesis external examiner:
* University of Waterloo 2019
* University of Houston, 2017
* Dept of Civil Engineering, McGill University, 2003, 2004
* Indian Institute of Technology, Mumbai, India.
* Indian Institute of Technology, Delhi, India
* Indian Institute of Technology, Guwahati, India
* Indian Institute of Technology, Patna, India
* Bhabha Atomic Research Center, Mumbai, India
* University of Oslo, Feb, 2006
* Chesapeake Biological Laboratory, 2005
* Ph.D. Thesis committee member, Chemistry department, UMBC, 2003.
* M.S. & Ph.D. Thesis committee member, Chesapeake Biological Laboratory, 2004.
* Grand Awards Judge, Intel International Science and Engineering Fair, San Jose, CA, May 8-9, 2001

**TECHNOLOGY TRANSITION AND STARTUP INITIATIVE**

Two startup companies that are transitioning into practice technologies developed at UMBC:

1) Sediment Solutions LLC. Manufactures, markets, and implements a new remediation technology developed at UMBC. Sediment Solutions has acquired two technology licenses: one from Stanford University (US patent # 7,101,115) on a related technology, and one from UMBC and Menzie Cura & Associates on the SediMite technology (US patent # 7,824,129). I am a co-inventor for in both patents. A COI management plan has been approved for my involvement with the technology commercialization. The company has implemented several commercial projects in the US and Europe.

2) RemBac Environmental LLC. This startup company co-founded with UMBC colleague, Dr. Kevin Sowers, manufactures and implements biological amendments for remediation of PCB-impacted sites. The company has licensed multiple patents on the technology from UMBC and has started implementing commercial projects in the US.

**CONSULTING**

I have performed environmental consulting for several government agencies, private corporations, consulting companies, and environmental law firms:

Arcadis

Anchor QEA

USACE

Windward Environmental

Texas A&M University/Texas Department of Environmental Quality

Smithsonian Environmental Research Center

Exponent

Hart Crowser

U.S. Environmental Protection Agency

Husch and Eppenberger LLP

Husch Blackwell Sanders LLP

Menzie Cura and Associates

AECOM Environment

Hydrogeologic Inc./Department of Defense

Environ Corporation.

Dow Chemical Company.

**CURRENT AND PAST COLLABORATORS**

Cindy Gilmour (Smithsonian Environmental Research Center); Thomas Klasson (USDA); Allen Davis (Univ of Maryland); David Werner (U of Newcastle upon Tyne); Gerard Cornelissen (NGI, Norway); John Davis (Dow Chemical Company); Larry McShea and Bruce Cook (Alcoa); Charles A. Menzie (Menzie Cura and Associates); Allen Place and Kevin R. Sowers (COMB); Joel E. Baker (CBL); Brian E. Reed (UMBC); Victor S. Magar (Environ); Bruce Sass (Battelle); Dave Nakles and Joseph P. Kreitinger (The Retec Group); Steve Hawthorne (Univ. of North Dakota); Saskia Duyvesteyn (University of Utah); Rich Pouyat (US Forest Service); Brian E. Reed, Jack Gwo, and Claire Welty (UMBC) Richard G. Luthy, Richard N. Zare and J. Seb Gillette (Stanford University); Jan Roelof van der Meer (EAWAG, Switzerland); Todd Bridges, Rod Milward (USACE Waterways Experiment Station); Hap Pritchard (Naval Research Laboratory); Jeffery W. Talley (University of Notre Dame); Michael Martin (Lawrence Berkeley National Laboratory); Larry Carr (National Synchrotron Light Source, Brookhaven National Laboratory); A. Scott Weber and James N. Jensen (SUNY at Buffalo); John R. Smith (Alcoa).

**Ph.D. Advisor:** Prof. A. Scott Weber, University at Buffalo

**Post Doctoral Advisor:** Prof. Richard G. Luthy, Stanford University