Curriculum Vitae

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EDUCATION

Ph.D. Chemistry (Analytical), University of Pittsburgh, Pittsburgh, USA. December 1982.
M.Sc. Chemistry (Physical-Inorganic) University of Dhaka, Dhaka, Bangladesh. 1976. First Class.
B.Sc. Honors in Chemistry, University of Dhaka, Dhaka, Bangladesh. 1975. First Class with Distinction in Physics and Mathematics.

PROFESSIONAL BACKGROUND

June 08- Current: ***Professor,*** Department of Chemistry and Biochemistry, George Mason University, USA**.**
Director, Center for Clean Water and Sustainable Technologies, GMU.
Aug '91- May '08: ***Associate Professor,*** Chemistry Department, George Mason University, USA.
Aug '85-July '91: ***Assistant Professor,*** Chemistry Department, George Mason University, USA.
Summer '86 and '87: ***Visiting Faculty,*** Chemistry Department, Georgetown University, Washington D.C. Study of Supercritical Fluid Chromatography. Department of Chemical Engineering, Case Western Reserve University, Cleveland, Ohio. Electrochemistry in Microemulsions.
Jan '83-Aug '85: ***Postdoctoral Fellow***, Chemistry Department, University of Minnesota. Study of Fluid Phase Equilibria by Headspace Gas Chromatography.
Aug '78-Dec '82: ***Teaching/Research Fellow***, University of Pittsburgh. Ph.D., Analytical Chemistry.
May '77-July '78: ***Scientific Officer,*** AEC, Dhaka, Bangladesh. Study of Proton Induced X-Ray Emission and Fluorescence Spectroscopy of Trace Elements.

AWARDS AND HONORS

- **University of Pittsburgh 225th Anniversary Medallion** – "alumni whose achievements have brought honor to the University and whose efforts have contributed to Pitt's progress over past twenty-five years." May 28, 2014.
- **Mercantile Bank Foundation Award**, **for** *outstanding contribution in the field of Science and Technology***,** Dhaka, Bangladesh. June 2, 2010. (Citation, Gold Medal, and Taka 1 Lakh)
- One of the eight University of Pittsburgh Graduates in last decade recognized in **'A Decade of Challenge - A Record of Impact and Distinction, 2010 Report of Chancellor Mark A. Nordenberg**, University of Pittsburgh, 2010.
- **Doctor of Science, Honoris Causa (D.Sc),** University of Dhaka, Dhaka, Bangladesh, 2009.
- **Outstanding American by Choice Award by US Citizenship and Immigrations Services** for "*civic participation, professional achievement, and responsible citizenship..".* October 21, 2008.
- **2008 Distinguished Alumni Award** for *"creativity, leadership, and accomplishments"*, Department of Chemistry, University of Pittsburgh, September 26, 2008.
- **National Academy of Engineering 2007 Grainger Challenge Prize Gold Award** for "*development, in-field verification and dissemination of the SONO Filters, an affordable, reliable, easy to maintain and socially acceptable household water treatment system to remove arsenic from contaminated groundwater in Bangladesh.*" Washington, D.C. February 20, 2007. (Citation, a gold medal and one million dollar.)
- **TIME Magazine, Global Heroes of the Environment 2007 Award** to recognize "*individuals whose remarkable hard work, determination and vision are raising awareness of the threats of our environment. These heroes of our time are inspirational figures whose talents and dedication is truly making a difference to the*

quality of our lives and our planet." Royal Court of Justice, London, England. Held on October 25, 2007 and featured in a special issue of TIME, Oct 19, 2007.

- **Bangladesh Economic Association Gold Medal Award 2007** for "the invention of wonder technology for mitigating of arsenic from groundwater".
- **Distinguish Speaker Series Award**, Kalamazoo Math and Science Center, Kalamazoo, MI., March 12, 2008.
- **Bangladesh American Society for Humanity** for "*...this prestigious award and glorious achievements. Bangladesh is forever indebted to you for your relentless endeavor toward the fulfillment of dreams and aspirations of the millions in need."* February 23, 2007.
- **Bangladesh Associations of America**, Washington DC, USA, March 2007.
- **College of Science Reception and Seminar** - George Mason University. March 22, 2007.
- **Embassy of Bangladesh, Washington DC**, USA, March 2007. *"In recognition of your outstanding contribution to remove arsenic from drinking water that is affecting millions of people in Bangladesh and beyond."*
- **Bangladesh Center for Community Development**, USA for *"Outstanding scientific invention of SONO filter"*, March 2007.
- **Dhaka University Graduates Group, Washington**, DC, USA *"In recognition of your contributions for uplifting the lives of arsenic affected people and for advancing the science",* April 2007.
- **Prince William County Department of Economic Development Business Appreciation Award** for *"Achieving the National Academy of Engineering $1 Million Grainger Challenge Prize and recognition for developing the SONO filter, an innovative solution for removing arsenic from drinking water and bettering human conditions in Bangladesh"*. May 2007
- International Council for Advancement of Bangladesh "*For his outstanding invention of SONO Filter for removing arsenic from drinking water."* New York, USA June 1, 2007
- **Referee and Umpire Association of Kushtia**, Bangladesh, June 2007.
- **District Bar Association** for *"receiving the highest prize and recognition by the National Academy of Engineering Grainger Challenge for Sustainability for SONO filter to remove arsenic from drinking water (translated from Bangla)"*, Kushtia, Bangladesh, June 2007.
- **Bangladesh National Committee to Honour the Grainger Challenge Winner** for "… *Your major breakthrough in science for the cause of humanity is a milestone in reinforcing the role that science can play in addressing the needs of the vast majority of the people of this planet...",* Dhaka, Bangladesh, June 30, 2007.
- **The Bangladeshi-American Foundation Inc.** "*in recognition of contributions and achievements."* GMU Patriot Center, July 6-7, 2007.
- **Bangladesh Medical Association of North America** "*In recognition of his achievements in finding a solution for arsenic contamination of drinking water in Bangladesh and neighboring countries."* NY, July 28, 2007.
- **Honorary Fellowship, Bangladesh Chemical Society** in *"appreciation of his outstanding achievements in science and technology for the removal of arsenic from groundwater,"* June 2007.
- **Federation of Biological and Chemical Societies, Appreciation Award**, Dhaka, Bangladesh, June 26, 2007.
- **Mystic Pharmaceutical Ltd. for** *"..path-breaking innovation of SONO filter technology for arsenic free drinking water."* Dhaka, Bangladesh, July 2007.
- **Dhaka University, Department of Chemistry**, on *"winning the Grainger Challenge Gold Award for the invention of SONO filter"*, Dhaka, Bangladesh, July 2007.
- **Institute of Diploma Engineers** for *"the development of an effective technology to remove arsenic and receiving the Grainger Challenge Prize (translated from Bangla)"*, Dhaka, Bangladesh, July 2007.
- **Moder Pathshala (Our School)** "*In recognition of your outstanding contributions to technology and your gracious presence as the guest of honor in our high school graduation ceremony-2007*". Philadelphia, PA. August 26, 2007.
- **Islamic Society of North America (ISNA)** *'for his contribution to world health'* Chicago, USA, September 1, 2007.
- **Federations of Bangladesh Associations of North America USA**, "*As a token of appreciation for your dedicated service."* Wichita, Kansas. September 2, 2007.
- **Outstanding Young Men in America**, 1987.
- **Top Merit Scholar,** Dhaka University 1972-1976.

RESEARCH

M. Sc Thesis
Multielement Trace Analysis by Proton Induced X-Ray Emission Spectroscopy. December 1976, Dhaka University, Bangladesh. Advisor: Professor Amir. H. Khan, Atomic Energy Centre, Dhaka, Bangladesh.

Ph. D. Dissertation
I. Potentiometric Stripping Analysis of Electropositive Elements by Solvent Optimization. II. Speciation of Water at Low Concentrations in Hydrogen Bond Acceptor Solvents. December 1982, University of Pittsburgh, USA. Advisor: Professor J. F. Coetzee, Department of Chemistry, University of Pittsburgh, PA, USA.

PATENTS (first name inventor)
Iron composition based water filtration system for the removal of chemical species containing arsenic and other metal cations and anions, US Patent 8,404,210, March 26, 2013. Mexico Patent 2014
Removing Viruses from Drinking Water, US Patent 8636909B2, January 28, 2014.

PUBLICATIONS (Reviewed Journals, Book Sections and Proceedings)

1. Abul Hussam and Jinsoo Hong*. *A novel field deployable filter paper based amperometric gas sensor for the measurement of arsenic in water.* Journal of Electroanalytical Chemistry. 758, 156-162 (2015).
2. Mahmoud D. Eljack, Rachael E. Wilson, Abul Hussam*, Shahamat U. Khan., *Development of an Equilibrium Headspace Gas Chromatographic Method for the Measurement of Noncovalent Association and Partitioning of n-Alkylbenzenes at Infinite Dilution in Fulvic Acid Pseudophase*. Journal of Chromatography A.,1383, 1-7 (2015).
3. Mahmoud Eljack* and Abul Hussam*, *Novel Equilibrium Headspace Gas Chromatographic Technique for the Measurement of Noncovalent Association and Partition of n-Alkylbenzenes in Water/n-Dodecane and Water/1-Octanol Systems at Low Phase Ratio without Phase Separation.* Fluid Phase Equilibria. 384, 60-67 (2014).
4. Mahmoud Eljack and Abul Hussam*, *Extraction and solubilization of crude oil and volatile petroleum hydrocarbons by purified humic and fulvic acid and sodium dodecylbenzenesulfonate*. J. Environ. Sci. and Health. Part A. Toxic/Hazardous Substances & Environmental Engineering. 49(14), 1623-1630 (2014).
5. Anke Neumann*, Ralf Kaegi, Andreas Voegelin, Abul Hussam, Abul Munir, and Stephan Hug. *Arsenic removal with composite iron matrix filters in Bangladesh: a field and laboratory study.* Environ Sci. Technol., 47 (9), 4544–4554 (2013). http://dx.doi.org/10.1021/es305176x
6. Abul Hussam. *Potable Water: Nature and Purification* in Monitoring Water Quality. pp 259-279, S. Ahuja (Editor). Elsevier B.V. January 2013.
7. Ahmed, S. M, Ahmed, M. G*, Ahmed, S. A, Romman, U. K. R, Sultana, T, Hossain, M. M, and Hussam, A. *Synthesis of 8-aroyl-9-hydroxy-7,9,11-triaryl-3-oxo(or thioxo)-2,4-diazaspiro[5.5]undecane-1,5-diones* , Synthetic Communications 42(8), 1146-1153 (2012).
8. Kirubel Assegid*, Farhan Ahmed, Sad Ahamed, and Abul Hussam*. *Development of a Gas Phase Chemiluminescence System for the Measurement of Arsenic in Drinking Water*. Anal. Methods, 3 (12), 2921 – 2928 (2011).
9. Hon Zhang, Abul Hussam, Stephen Weber*. *Property and Transport Behavior of Perfluorotripentylamine (FC-70)-doped Amorphous Teflon AF 2400 Films*. J. Am. Chem. Soc., 132(50), 17867-17879 (2010).
10. Abul Hussam, *Contending with a Development Disaster: SONO Filters Remove Arsenic. Innovations: Technology*, Governance, and Globalization. 4(3), 103–106 (2009).
11. Abul Hussam, Clean Drinking Water: *Solving the Arsenic Crisis in Bangladesh through a Sustainable Local Filtration Technology*. IOM (Institute of Medicine) 2009. pp. 24-29. Global Environmental Health: Research Gaps and Barriers for Providing Sustainable Water, Sanitation, and Hygiene Services. Washington, D.C.: The National Academic Press, www.nap.edu.
12. Doug Mays and Abul Hussam*. *Voltammetric Measurement of Arsenic in the Environment - A Review.* Analytica Chimica Acta. 646, 6-16 (2009).
13. Sad Ahamed, Abul K. M. Munir, and Abul Hussam. *Groundwater Arsenic Removal Technologies Based on Sorbents: Field Applications and Sustainability*, in Handbook of Water Quality and Water Purity, pp 379-417, S. Ahuja (Editor), Elsevier Inc., 2009.
14. Abul Hussam*, Sad Ahamed, and Abul K. M. Munir. *Arsenic Filters for Bangladesh: Toward a Sustainable Solution.* The Bridge - Linking Engineering and Society, National Academy of Engineering, 38(3), 14-23 (2008).

15. Abul Hussam* and Abul K. M. Munir. *Development of a simple arsenic filter for groundwater of Bangladesh based on composite iron matrix* in Arsenic Contamination of Groundwater: Mechanism, Analysis, and Remediation. pp 278 – 289, S. Ahuja (Editor). Wiley Interscience. 2008.
16. Abul Hussam* and Abul K. M. Munir. *A simple and effective arsenic filter based on composite iron matrix: development and deployment studies for ground water of Bangladesh*. J. Environ. Sci. and Health. Part A. Toxic/Hazardous Substances & Environmental Engineering. 42, 1869-1878, 2007.
17. A. Hussam, and M. Alauddin. *Foreword: Special Issue on Arsenic*. J. Environ. Sci. and Health, Part A. Toxic/Hazardous Substances & Environmental Engineering. 42, 1693-1694, 2007.
18. A. Hussam, *Voltammetry: Dynamic Electrochemical Techniques* in Comprehensive Analytical Chemistry. Volume 47. pp 663- 692, S. Ahuja and N. Jespersen (Eds). Elsevier B.V., 2007.
19. K. P. Bloschock, T.W. Schneider, A. Hussam, E.R. Van Keuren*. *Development of a MEMS-fabricated SU-8 device for 2D separations* in Smart Medical and Biomedical Sensor Technology IV, Brian M. Cullum; J. Chance Carter, Editors, Proceedings Vol. 6380. Oct 23, 2006.
20. M Giasuddin Ahmed*, Syed M Iqbal Moeiz, S Asghari Ahmed, and Abul Hussam. *Mass spectral fragmentation of substituted adamantane-2,4-diones.* Indian J. Chem., Vol 45B (5), 1234 (2006).
21. M. G. Ahmed*, S. A. Ahmed, S. M. Ahmed, M. M. Hossain, and A. Hussam. *Synthesis of 7,11-diaryl-3-oxo (or thioxo)-2,4-diazaspiro[5.5]undecane-1,5,9-triones, Part I.* J. Chemical Research, 622-625, October (2005).
22. A. Hussam*, Z. Ahmed, and G. Mushrush. *Solute-Solute Interactions in Jet Fuel by Ultralow Conductance Measurement.* J. Petroleum Sci. and Technol. 23, 1129-1138 (2005).
23. A. A. Shaikh, M. Q. Ehsan, S. A. Ahmed, M. G. Ahmed, A. Hussam, and A. H. Khan*. *Electrochemical Studies on Redox reactions of Oximes at Carbon Paste and Glassy Carbon Electrodes.* Oriental J. Chem. 20(3), 421-428 (2004).
24. K. P. Bloschock*, J. N. Flyer, T.W. Schneider, A. Hussam, E.R. Van Keuren, *Development of a MEMS 2D separations device.* Proceedings of the International Society for Optical Engineering, Vol. 5591, Paper 12. 2004.
25. A. Hussam. *Book Review: Environmental Chemistry of Arsenic, Ed. W. T. Frankenberger, Jr. Marcel Dekker, Inc. NY.* J. Environ. Sci. and Health, A39(6), 1643-1644 (2004).
26. D. Chakraborti, A. Hussam, and M. Alauddin. *Foreword: Special Issue on Arsenic: Environmental and Health Aspects with Special Reference to Groundwater in South Asia*. J. Environ. Sci. and Health, A38(1), pp xi-xv, (2003).
27. A. Hussam*, M. Habibuddowla, M. Alauddin, Z. A. Hossain, A. K. M. Munir, and A. H. Khan, *Chemical Fate of Arsenic and Other Metals in Groundwater of Bangladesh: Experimental Measurement and Chemical Equilibrium Model*, J. Environ. Sci. and Health, A38(1), 71-86, (2003).
28. A. Hussam*, M. Alauddin, A. H. Khan, D. Chowdhury, H. Bibi, M. Bhattacharjee, and S. Sultana. *Solid Phase Microextraction: Measurement of Volatile Organic Compounds (VOCs) in Dhaka City Air Pollution.* J. Environ. Sci. Health, A37(7). 1223-1239 (2002).
29. Rasul, S. B.; Hossain, Z.; Munir, A. K. M.; Alauddin, M.; Khan, A. H.; Hussam*, A. *Electrochemical Measurement and Speciation of Inorganic Arsenic in Groundwater of Bangladesh*. Talanta, 58(1), 33-43 (2002).
30. M. Alauddin, A. Hussam*, A. H. Khan, M. Habibuddowla, S. B. Rasul, and A. K.M. Munir; *Critical Evaluation of a Simple Arsenic Removal Method for Groundwater of Bangladesh.* in 'Arsenic Exposure and Health Effects', W. R. Chappell, C. O. Abernathy, and R. L. Calderon (Editors), Elsevier Science, B. V. 2001. pp. 439-449.
31. A.K.M. Munir*; S. B. Rasul, M. Habibuddowla, M. Alauddin, A. Hussam, and A. H. Khan, *Evaluation of the Performance of the Sono3-Kolshi Filter for Arsenic Removal from Groundwater Using Zero Valent Iron Through Laboratory and Field Studies.* Proceedings International Workshop on Technology for Arsenic Removal from Drinking Water, Bangladesh University of Engineering and Technology and United Nations University, Japan, May 5, 2001. pp. 171-189.
32. A. H. Khan, S. B. Rasul, A. K. M. Munir, M. Habibuddowla, M. Alauddin, and A. Hussam*. *On Two Simple Arsenic Removal Methods for Groundwater of Bangladesh*. Proceedings Bangladesh Environmental Network Conference, Dhaka, Bangladesh, Jan 14, 2000. pp 12.
33. A. H. Khan, S. B. Rasul, A. K. M. Munir, M. Habibuddowla, M. Alauddin, S. S. Newaz, A. Hussam*; *Appraisal of a Simple Arsenic Removal Method for Groundwater of Bangladesh*; J. Environ. Sci. and Health, A35(7), 1021-1041 (2000).
34. A. Hussam*, M. Alauddin, A. H. Khan, S. B. Rasul, and A. K. M. Munir.; *Evaluation of Arsine Generation in Arsenic Field Kit;* Environ. Sci. and Technol.; 33, 3686-3688 (1999).

35. Dilip M. Shah, Keith M. Davies*, Abul Hussam; *Electrochemical Investigation of Amphiphilic Cobalt Complexes and Ferrocene Derivatives in Sodium Dodecyl Sulfate Microemulsions;* Langmuir, 13, 4729-4736 (1997).
36. Wei Zhang, Robert V. Honeychuck, and Abul Hussam*; *Buckministerfullerene-containing Microemulsions;* Langmuir, 12, 1402-1403, (1996).
37. A. Hussam*, S. C. Basu, M. Hixon, and Z. Olumee; *General Method for the Study of Solute-Surfactant Association Equilibria of Volatile Solutes by Headspace Gas Chromatography.*; Anal. Chem., 67, 1459-1464, (1995).
38. K. M. Davies*, A. Hussam*, B. R. Rector, Jr., I. M. Owens, and P. King; *Redox Reactions of Lipophilic Cobalt Complexes in Aqueous Surfactant Media. Correlation of Rate and Electrochemical Behavior.* Inorg. Chem., 33, 1741-1747, (1994).
39. Keith Davies* and Abul Hussam*; *Electrochemical Studies of Metal Complexes in Micellar Solution.* Langmuir, 9, 3270-3276, (1993).
40. D. E. Martire*, R. L. Reister, T. J. Bruno, A. Hussam, and D. P. Poe; *Generalized Treatment of Spatial and Temporal Column Parameters, Applicable to Gas, Liquid and Supercritical Fluid Chromatography. II. Application to Supercritical CO_2*; J. Chromatogr. 545, 135-147, (1991).
41. J. M. Zytkow*, J. Zhu, and A. Hussam; *Determining Repeatability and Error in Experimental Results by a Discovery System; Methodologies for Intelligent Systems*, Volume 5, 1990, Ed. Ras. Z.; Elsevier, New York.
42. J. M. Zytkow*, J. Zhu, and A. Hussam; *Automated Discovery in Chemistry Laboratory;* Proceedings of the Eighth National Conference on Artificial Intelligence (AAAI-90), AAAI Press, Massachusetts Institute of Technology, USA, 1990, pg. 889-894.
43. E. Dayalan, S. Qutubuddin*, and A. Hussam; *Electrochemical Investigations in Microemulsion Media. 1. Methylviologen Reduction*; Langmuir, 6, 715-721 (1990).
44. K. R. Choksi, S. Qutubuddin*, and A. Hussam; *Electrochemical Investigation of Microemulsions*; J. Colloid and Interfac. Sci., 129(2), 315-326 (1989).
45. A. Hussam*. *Fast Step-Potential Pulse Chronopotentiometry;* Anal. Chem., 60, 2776-2781 (1988).
46. A. Hussam* and G. Gunaratna; *Chronopotentiometry by Measuring Current Transients*; Anal. Chem., 60, 503-507 (1988).
47. L. Meites* and A. Hussam; *Optimization of Data Acquisition Schedule in Physicochemical Experiments. I. Principle of the Method and Application to the First-Order Decay of an Absorbing Species*; Anal. Chim. Acta., 204, 295-309 (1988).
48. J. H. Park, A. Hussam, P. Cousnon, and P. W. Carr*; *The Precision of Area and Height Measurement with Flame Ionization Detector in Temperature Programmed Capillary Gas Chromatography;* Microchemical Journal, 35, 232-239 (1987).
49. Hussam, J. H. Park, and P. W. Carr*; *Use of Homologous Series of Liquids for the Study of the Linearity and Relative Response Factors for Methyl and Methylene Groups in Flame Ionization Detectors by Headspace Gas Chromatography;* Microchemical Journal, 36, 107-111 (1987).
50. J. H. Park, A. Hussam, P. Couasnon, D. Fritz, and P. W. Carr*; *Experimental Reexamination of Selected Partition Coefficients from Rohrschneider's Data Set*; Anal. Chem., 59, 1970-1976, (1987).
51. Hussam and Peter W. Carr*; *A Study of Rapid and Precise Methodology for the Measurement of Vapor/Liquid Equilibria by Headspace Gas Chromatography*; Anal. Chem., 57, 793-801 (1985).
52. Hussam and J. F. Coetzee*; *Potentiometric Stripping Analysis: Theory, Experimental Verification, and Generation of Stripping Polarograms*; Anal. Chem. 57, 581-585 (1985).
53. S. Qutubuddin, G. C. Berry, C.A. Miller, T. Fort, Jr., and A. Hussam; *An Investigation of Microemulsions Using Electrophoretic Laser Light Scattering*; "Surfactants in Solutions", Volume 3, pp. 1693-1708; Mittal, K. L. and B. Lindman, Eds., Plenum Press, 1985.
54. J. F. Coetzee*, A. Hussam, and T. R. Petrick; *Extensions of Potentiometric Stripping Analysis to Electropositive Elements by Solvent Optimization*; Anal. Chem., 55, 120-122 (1982).
55. J. F. Coetzee* and A. Hussam; *Speciation of Water at Low Concentration in Hydrogen Bond Acceptor Solvents by Proton Magnetic Resonance Spectroscopy*; J. Soln. Chem., 11, 395-407 (1982).
56. M. A. Kalam, A. Hussam, M. Khaliquzzaman, A. H. Khan*, M. M. Islam, M. B. Zaman, and M. Husain; *Elemental Analysis in Solutions by Radioisotope Excited X-Ray Fluorescence Spectroscopy*; J. Radioanal. Chem. 46, 285-297 (1978).

PROFESSIONAL PRESENTATIONS (Conference Papers and Abstracts)

1. B. Rapp* and A. Hussam. *Inductive touch sensors as detectors for nanoparticles.* Middle Atlantic Regional Meeting, University of Baltimore, Maryland, June 1, 2019. Abstract # 258
2. U. Tahir*, A. Hussam, and P. G. Roy. *Equilibrium headspace gas chromatographic study of thermodynamics of perfum- sodium dodecylsulfate interactions.* Middle Atlantic Regional Meeting, University of Baltimore, Maryland, June 2, 2019. Abstract # 292.
3. T. G. Moon* and A. Hussam, *Noncovalent interactions of n-alkylbenzenes at infinite dilution with silica nano particles during hydrolysis of tetraethyl orthosilicate (TEOS).* Middle Atlantic Regional Meeting, University of Baltimore, Maryland, June 2, 2019. Abstract # 91.
4. A. Frederic* and A. Hussam. *Development and study of a flow injection isothermal microcalorimete.* Middle Atlantic Regional Meeting, University of Baltimore, Maryland, June 2, 2019. Abstract # 227.
5. Carol Ajan*, Abul Hussam, and Greg Foster. *Sorption of Ciprofloxacin to perfluorinated compounds determined through fluorescence quenching.* ACS Conference, Boston, March 31, 2019.
6. Douglas Mays* and Abul Hussam. *A Simple Flow Cell for the Measurement of Groundwater Arsenic (3+/5+) in the Field.* October 4, 2017. 232 nd Electrochemical Society National Meeting, National Harbor, MD, USA.
7. Tugrul Imer, Oğuzhan Gök*, Abul K. M. Munir, and Abul Hussam, *Development of composite iron matrix based water filter for the removal of arsenic and heavy metals from groundwater to make potable water*. International Conference on Science and Technology, Ankara, Turkey, October 3-6, 2016.
8. Abul Hussam*, Douglas Mays, Jinsoo Hong, and Joan Rozario. *Novel Electrochemical and Reflectance Photometric Techniques for the Measurement of Trace Arsenic in Water* "The Role of Analytical Chemistry in Water Quality", Eastern Analytical Symposium, NJ, USA, Nov 18, 2014. Paper # 299. (invited speaker) http://www.eas.org/asubmit/invited_index.php
9. Minchala, Sandra*, Dham, Sanjita, Shaha, Sanjit, Behri, Ervila, Hussam, Abul, Alauddin, Sarah, and Alauddin, Mohammad. *Search for safe underground water through observation of tubewell concrete platform color in Sothern Bangladesh.* Groundwater and Surface-Water Arsenic: From Source to Sink II. 2014 Geological Society of America- Annual Meeting in Vancouver, British Columbia, 22nd October 2014.
10. Joan Rozario* and Abul Hussam, *Development of an arsenic sensor based on electrochemical gradient in porous media***.** Biochemistry Internship. Georgetown University, Washington DC, May 17, 2014.
11. Joan Rozario* and Abul Hussam, *Study of Ag^+ - AsH_3 Reaction by Reflectance Photometry- Application in Trace Arsenic Measurement*, ACS 42nd Middle Atlantic Regional Meeting -MARM 2011; May 21-24, University of Maryland, College Park, MD, USA.
12. Abul Hussam, *Water filters based on composite iron matrix: Fundamental studies and large scale deployment*. Environmental Chemistry Division: "Water: Global Problems, Local Solutions", ACS National Meeting in Indianapolis, September 10, 2013. (Invited speaker)
13. Abul Hussam, *Novel water filters based on composite iron matrix: Fundamental studies, production and deployment.* Workshop on Water Filtering: Public Governance for Innovative Technology, February 21, 2013, Hacettepe University, Ankara, Turkey.
14. Neumann A*, Kaegi R, Voegelin A, Hussam A, Munir AKM, and Hug S. *Arsenic Removal with Composite Iron Matrix Filters from Bangladesh*. Assessing Micropollutant Transformation Dynamics in the Earth's Critical Zone, Goldschmidt 2011, 16th August, 2011, Prague, Czech Republic.
15. Sad Ahamed*, Said Khiti, Abul. K. Munir and Abul Hussam, *Dynamics of Arsenic Removal by Composite Iron Matrix*, ACS 42nd Middle Atlantic Regional Meeting -MARM 2011; May 21-24, University of Maryland, College Park, MD, USA.
16. Mahmud Eljack* and Abul Hussam, *Association of n-Alkylbenzenes with Fulvic Acid in Aqueous Media*, ACS 42nd Middle Atlantic Regional Meeting -MARM 2011; May 21-24, University of Maryland, College Park, MD, USA.
17. Kirubel Assegid* and Abul Hussam, *Gas-phase Chemiluminescence of Arsine for the Measurement of Arsenic in Water: Development of a Routine Analytical Technique*, ACS 42nd Middle Atlantic Regional Meeting - MARM 2011; May 21-24, University of Maryland, College Park, MD, USA.
18. Joan Rozario* and Abul Hussam, *Study of Ag^+ - AsH_3 Reaction by Reflectance Photometry- Application in Trace Arsenic Measurement*, ACS 42nd Middle Atlantic Regional Meeting -MARM 2011; May 21-24, University of Maryland, College Park, MD, USA.
19. Abul Hussam*, *Provisioning of arsenic-free drinking water in Bangladesh: Sustainable Technologies and Social Implications*. Clifford Symposium: Beyond Rx: Global Health. Middlebury College, Vermont, USA. September 24, 2010.

20. Abul Hussam* and Sad Ahmed, A*rsenic sorption dynamics on composite iron matrix for efficient arsenic water filter design,* ENVRO12a Sustaining Water Quality, Document ID 11741, 240th American Chemical Society National Meeting, Boston MA. August 23, 2010.
21. Abul Hussam* and Sad Ahmed, *Fast evaluation of arsenic sorption dynamics on iron based sorbents by continuous flow hydride generation atomic fluorescence spectrometry.* Advances in Analytical Chemistry for Environmental Applications, Paper 20, 238th American Chemical Society National Meeting, Washington D.C. August 23, 2010.
22. Purnendu Dasgupta*, Mrinal K. Sengupta, and Abul Hussam., *Electroreduction based gas-phase chemiluminescence: Green analyzer for arsenic.* Paper 175, 239th American Chemical Society National Conference, San Francisco, CA, USA. March 21-25. 2010.
23. Kirubel Assegid* and Abul Hussam, *Development of a gas phase chemiluminescence system for the measurement of arsenic in environmental samples.* Abstract #970-IP, Fluorescence and Luminescence Applications, Pittsburgh Conference (PITTCON), Orlando, Florida, March 01, 2010.
24. Abul Hussam* and Sad Ahmed, *Fast evaluation of arsenic sorption dynamics on iron based sorbents by continuous flow hydride generation atomic fluorescence spectrometry.* Advances in Analytical Chemistry for Environmental Applications, Paper 20, 238th American Chemical Society National Meeting, Washington D.C. August 17, 2009.
25. Kirubel Assegid* and Abul Hussam, *Development of a gas phase chemiluminescence detection system for the measurement of arsenic in environmental samples.* General poster # 59, 238th American Chemical Society National Meeting, Washington D.C. August 16 and 17, 2009.
26. Doug E. Mays* and Abul Hussam, *Voltammetric speciation of arsenic in groundwater: Problems and prospects.* General poster # 198, 238th American Chemical Society National Meeting, Washington D.C. August 16, 2009.
27. Sad Ahamed*, Abul K. M. Munir, and Abul Hussam, *Novel arsenic filters based on composite iron matrix: Fundamental studies, production, and large scale deployment.* General poster # 188, 238th American Chemical Society National Meeting, Washington D.C. August 19, 2009.
28. Abul Hussam. *Chemistry for Clean Water.* Keynote and theme paper presented and published by Bangladesh Chemical Congress 2008, Dhaka Bangladesh. Jan 30, 2009. (invited keynote speaker)
29. Abul Hussam*, Abul K. M. Munir, and Sad Ahamed. *Arsenic Filter based on Composite Iron Matrix.* Paper presented at International Conference on Water Scarcity, Global Changes, and Groundwater Management Responses, http://www.uwrc.uci.edu/events/2nd Announcement International Conference Irvine December .pdf, UC Irvine, United Nations Educational, Scientific and Cultural Organization (UNESCO) and U.S. Geological Survey (USGS)., University of California, Irvine. Dec. 1-5, 2008 (invited)
30. Abul Barkat* and Abul Hussam*. *Provisioning of Arsenic-free Water in Bangladesh: A Human Rights Challenge.* Keynote Paper presented at Engineering, Social Justice, and Sustainable Community Development Workshop, The National Academy of Engineering (NAE) Centre for Engineering, Ethics, and Society and the National Science Foundation, Washington, D.C. October 2-3, 2008. (invited)
31. Abul Hussam*, Amir H. Khan, and Abul K. M. Munir. *Measurement of Arsenic in Groundwater of Bangladesh: Kit vs. Instrumental Techniques and Inter-laboratory Comparison Studies*. Pittsburgh Conference 2007, Arsenic: Transformation, Speciation and Toxicity, Feb 28, 2007. Chicago, USA. Invited Speaker.
32. Abul Hussam*, Mohammad Alauddin, Amir H. Khan, and Abul K. M. Munir., *Measurement of arsenic in groundwater of Bangladesh: Technical overview and interlaboratory comparison studies*. Paper ANYL 351, The 231st ACS National Meeting, Atlanta, GA, March 26-30, 2006. Invited Speaker
33. Mohammad Alauddin*, Margaret Fiasconaro, Sarah Alauddin, Abul Hussam, Maya Bhattacharjee, Shamima Sultana, and Mohammad Jakariya. *Fate of arsenic and other trace metals in deep aquifer water of Bangladesh.* Paper ANYL 381, The 231st ACS National Meeting, Atlanta, GA, March 26-30, 2006
34. Abul Hussam* and Amir H. Khan. *Groundwater arsenic filters: A critical look at two environmental technology verification projects for arsenic mitigation (ETVAM) in Bangladesh.* Paper 353, The 231st ACS National Meeting, Atlanta, GA, March 26-30, 2006. Invited Speaker.
35. Abul K. M. Munir* and Abul Hussam. *Composite iron matrix based arsenic filter for groundwater of Bangladesh: A large scale deployment studies.* Paper ENVR 150, The 231st ACS National Meeting, Atlanta, GA, March 26-30, 2006.
36. Jie Zhang*, Hong Zhao, Abul Hussam, and Stephen G. Weber., *Selective Transport of Organic Solutes through Teflon AF Films.*, Paper No 1110-7, Pittsburgh Conference, March 14, 2006

37. Hussam, A*., Munir, A. K. M. *Groundwater Arsenic Filter based on Composite Iron Matrix: Performance and Large Scale Deployment Studies*. 6th International Conference on "Safe Water and Safe Food Options in Arsenic Mitigation: Lessons Learned", Dhaka Community Hospital, Dhaka, Bangladesh. Jan 4, 2006. Invited Speaker.
38. M. Alauddin*, M. Fiasconaro, S. Alauddin, A. Hussam, M. Bhattacharjee, S. Sultana, and M. Jakariya. *Fate of arsenic and other trace elements in deep aquifer water of Bangladesh.* 6th International Conference on "Safe Water and Safe Food Options in Arsenic Mitigation: Lessons Learned", Dhaka Community Hospital, Dhaka, Bangladesh. Jan 4, 2006.
39. Stephen G. Weber*, Jie Zhang, Hong Zhao, Kristi O'Neal, Max Osipov, Alex Harmatuck, Abul Hussam, *New Observations on Partitioning, Transport, and Molecular Recognition in Fluoros Media,* International Conference on Electrochemical Sensors, Matrafured, Hungary, November 13-18, 2005.
40. Abul Hussam* and A.K.M. Munir, *Development and Deployment of an Arsenic Filter for Groundwater of Bangladesh*. American Chemical Society, 37th Middle Atlantic Regional Meeting, Session: Assuring Water Purity, May 23, 2005. Abstract # 252. Invited Speaker.
41. K. P. Bloschock*, J. N. Flyer, T.W. Schneider, A. Hussam, E.R. Van Keuren, Development of a *MEMS 2D Separations Device.* International Conference on MEMS and Optics, International Society for Optical Engineering (SPIE), October 23, 2004.
42. Hussam*, A., Munir, A. K. M., Hossain, Z. A., Alauddin, M., Khan, A. H., Chusuei, C. C. *Chemistry of a Simple and Effective Groundwater Arsenic Filter Based on Iron Composites: A Large Scale Bangladesh Experiment.* Advances in Arsenic Research: Integration of Experimental and Observational Studies and Implications for Mitigation. 226th American Chemical Society National Meeting, New York, NY, September 8, 2003. Abstract 676068. Invited Speaker.
43. M. Bhattacharjee, S. Sultana, A. Hasneen, M. S. Islam, M. Alauddin*, M. Fiasconaro, S. Alauddin, A. Hussam, and A.M. Sikder. *Speciation of arsenic in bore-hole sediment leachate and groundwater of Bangladesh*. 7th International Conference on the Biogeochemistry of Trace Elements (7th ICOBTE), Special Symposium, Arsenic in Soil and Groundwater Environments: Biogeochemical Interactions, Uppsala, Sweden, June 15-19, 2003.
44. M. Bhattacharjee, M. Alauddin, A. Hussam, U. Ali, S. Sultana, S. Islam, and K. Sarkar. *Status of Volatile Organic Compounds (VOC), Suspended Particulate Matters and Lead in Ambient Air and Indoor Environments in Dhaka City*. Better Air Quality 2002, Regional Workshop on Better Air Quality in Asia and Pacific Rim Cities, Hong Kong. 16-18 December 2002.
45. Abul Hussam*, Abul Kalam M. Munir, Zafreen A. Hossain, Mohammad Alauddin, and Amir H. Khan. *A Simple and Effective Groundwater Arsenic Filter Based on Iron and Iron Composites: Bangladesh Experience*., American Association of Bangladeshi Engineers and Architects, Fourth Biennial Convention, Laurel, Maryland, USA, October 12, 2002. Invited Speaker.
46. M. Alauddin* and A. Hussam. *Indoor Air Pollution, Household Exposure to Suspended Particulate Matters and Volatile Organic Compounds in Rural Bangladesh.* Fourth Biennial Convention, American Association of Bangladeshi Engineers and Architects, Laurel, Maryland, USA, October 12, 2002.
47. D. Chowdhury, M. Bhattacharya, H. Bibi, S. Begum, M. S. Islam, M. Alauddin*, D. M. Fiasconaro, A. Hussam, and A. M. Sikdar, *Speciation of arsenic in sediment leachate by chromatographic separation and flow injection hydride generation atomic absorption spectrometry,* International Conference on Arsenic, Dhaka, Bangladesh, January 11-12, 2002.
48. A. K.M. Munir*; S. B. Rasul, M. Habibuddowla, M Alauddin, A. Hussam, and A. H. Khan, *Evaluation of the Performance of the Sono3-Kolshi Filter for Arsenic Removal from Groundwater Using Zero Valent iron Through Laboratory and Field Studies.* International Workshop on Technology for Arsenic Removal from Drinking Water, Bangladesh University of Engineering and Technology and United Nations University, May 5, 2001.
49. M. Alauddin*, A. Hussam, A. H. Khan, M. Habibuddowla, S. B. Rasul, and A. K.M. Munir; *Critical Evaluation of a Simple Arsenic Removal Method for Groundwater of Bangladesh.* Fourth International Conference on Arsenic Exposure and Health Hazard, SanDiego, California, June 2000.
50. A. H. Khan*, S. B. Rasul, A. K. M. Munir, M. Habibuddowla, M. Alauddin, and A. Hussam. *On Two Simple Arsenic Removal Methods for Groundwater of Bangladesh*. International Conference on Bangladesh Environment, Dhaka, Bangladesh, Jan 14, 2000.
51. A. H. Khan*, A. Hussam, M. Alauddin, S. B. Rasul, and A. K. M. Munir. *Evaluation of Arsenic Kit*. International Conference on Bangladesh Environment, Dhaka, Bangladesh, Jan 14, 2000.
52. M. Alauddin*, A. H. Khan, and Abul Hussam, *Volatile Organic Compounds in Urban Air*. International Conference on Bangladesh Environment. Dhaka, Bangladesh. January 14-15, 2000.

53. A. Hussam* , M. Alauddin, A. H. Khan, S. B. Rasul, and A. K. M. Munir.; *Arsine Generation in Arsenic Field Kit*: *A Health Hazard*. International Conference on Arsenic in Bangladesh Ground Water.; Wagner College, New York, February 27-28, 1999.
54. M. Alauddin, Y. Islam, M. Habibuddowla, and A. Hussam*; *Arsenic Measurement: The Right Approach for Bangladesh!.* International Conference on Arsenic in Bangladesh Ground Water.; Wagner College, New York, February 27-28, 1999.
55. S. B. Rasul , N. Ahmed , A. K. M. Munir, S. Washe, M. Khaliquzzaman, and A. H. Khan , and A. Hussam*.; *Speciation of Arsenic in Ground Water of Bangladesh*., International Conference on Arsenic in Bangladesh Ground Water.; Wagner College, New York, February 27-28, 1999.
56. A. H. Khan*, A. Hussam, and M. Alauddin.; *Ground Water Chemistry and Arsenic Distribution in Ground Water of Bangladesh.* International Conference on Arsenic in Bangladesh Ground Water.; Wagner College, New York, February 27-28, 1999.
57. M. Alauddin*, A. Hussam, and A. H. Khan.; *Levels of Arsenic in Some Specific Areas of the Dhaka City and Sitakundu.*, International Conference on Arsenic in Bangladesh Ground Water.; Wagner College, New York, February 27-28, 1999.
58. A. H. Khan*, M. Khaliquzzaman, M. Alauddin, A. Hussam, A. K. M. Munir, A. I. Kazi, and M. Aftabuddin.; Analytical Science of Arsenic: *Problems and Practice in Arsenic Analysis in the Bangladesh Laboratories.* ; International Conference on Arsenic in Bangladesh Ground Water.; Wagner College, New York, February 27-28, 1999.
59. K. M. Munir, S. B. Rasul, N. Ahmed, S. Washe, M. Khaliquzzaman, A. Hussam and A. H. Khan*.*; *On Analytical Aspects of Arsenic in Groundwater: An Electrochemical Approach.* International Conference on Arsenic Pollution of Ground Water in Bangladesh: Causes, Effects and Remedies.; 8-12 February, 1998.
60. A. Hussam; *A Precise Method for the Study of Solute-Surfactant Association Equilibria by Headspace Gas Chromatography*, Middle Atlantic Regional Conference for Analytical Chemists, Towson, Maryland, April, 1996.
61. A. Hussam*, S. H. Siddiqui, and S. Qutubuddin; *Electrochemical Behavior of Synthetic-Lipid Modified Carbon Fiber Electrodes: Amperometric Detection of Ca(II*) ; 204th American Chemical Society National Meeting, August 23, 1992.
62. M. Davies* and A. Hussam; *Redox Behavior of Cobalt Phenanthroline and Terpyridine Complexes in Micellar Solutions;* 204th American Chemical Society National Meeting, August 23, 1992. INORG 87
63. M. Alauddin, R. Gowran, A. Hussam*, and O. Lofthus; *Fabrication and Performance of a Glucose Microsensor Inside a Capillary Tube*; 204th American Chemical Society National Meeting, August 23, 1992.
64. A Hussam* and M. Hixon; *Vapor/Liquid Equilibria of Microemulsions*; Virginia Academy of Science Conference, George Mason University, Fairfax, VA, May 29 1990.
65. M. Zytkow*, J. Zhu, and A. Hussam; *Automated Discovery in Chemistry Laboratory*; Eighth National Conference on Artificial Intelligence (AAAI-90), July 29 - Aug 3, 1990. Boston, MA.
66. Peter W. Carr*, Won Jo Cheong, and Abul Hussam; *Infinite Dilution Activity Coefficients in Exploring the Mechanism of Reversed Phase Liquid Chromatography*; 28th Eastern Analytical Symposium, New York, September 25, 1989.
67. Qutubuddin*, S. Dayalan, K. R. Choksi, and A. Hussam; *Electrochemical Characterization of Microemulsions;* Paper presented at the 6th International Conference on Surface and Colloid Science, Hakone, Japan, June 1988.
68. Dayalan, S. Qutubuddin*, and A. Hussam; *Electrochemistry in Microemulsions*; Paper presented at the 62nd ACS Symposium on Colloid and Surface Science, Pennsylvania State University, June 1988.
69. S. Qutubuddin*, A. Hussam, and K. R. Choksi; *Electrochemical Characterization of Microemulsion*s; Gordon Conference on Chemistry at Interfaces, July, 1986.
70. A. Hussam*; *Computer Aided Chronopotentiometry by Current Transient Measurement*; Middle Atlantic Analytical Chemistry Conference, Pittsburgh, Oct 18, 1986.
71. F. Coetzee, A. Hussam, and M. Ecoff; *Advantages of Fiber Electrodes in Potentiometric Stripping Analysis;* Pittsburgh Analytical Conference, February 25, 1985.
72. S. Qutubuddin*, K. R. Choksi, A. Bhatia, and A. Hussam; *An Electrochemical Investigation of Oil-in-Water Microemulsions;* Symposium on Microemulsions; AIChE Annual Meeting, Chicago, November 1985.
73. A. Hussam; *Rapid Measurement of Vapor/Liquid Equilibria by Headspace Gas Chromatography*; Minnesota Chromatography Forum, Minneapolis, June 1985.
74. P. W. Carr*, A. Hussam, J. H. Park, and P. Couasnon; *Microchemical Methods Based Upon Capillary Gas Chromatography for the Study of Vapor/Liquid Equilibria*; Silver Jubilee Eastern Analytical Symposium, New York, Oct 20, 1985.

75. S. Qutubuddin*, A. Hussam, and K. R. Choksi; *Electrochemical Investigation in Microemulsions*; Annual Symposium of Electrochemistry at Case Center for Electrochemical Studies, Cleveland, November, 1983.
76. J. F. Coetzee* and A. Hussam; *Speciation of Water at Low Concentrations in Organic So*lvents; International Conference on Nonaqueous Solvents; France, 1982.
77. J. F. Coetzee*, A. Hussam, and T. Petrick; *Extension of Potentiometric Stripping Analysis to Electropositive Elements by Optimization of Solvents*; Pittsburgh Conference. Atlantic City, NJ, 1981.

SEMINAR PRESENTATIONS (Invited Talks)

1. *Noncovalent Interactions in Pseudophase by Equilibrium Headspace Gas Chromatography: Applications in Solvent Extractions, Surfactants, and Nanoparticles.* Department of Chemistry, Dhaka University, Dhaka, Bangladesh, January 16, 2018.
2. *Crisis of Clean Drinking Water in Bangladesh: Social Implication and Sustainable Solution.* Federation of Bangladesh Association of North America (FOBANA) Convention, September 4, 2016, Washington DC.
3. *Safe Potable Water: Innovation and Expectation.* Seminar organized by Bangladesh Pediatric Association (BPA), Dhaka, BIRDEM Auditorium, Dhaka, Bangladesh, January 12, 2016
4. *Saving preterm infants with chemical warming padded jacket where incubators are not available: Laboratory evaluation.* Workshop on Preterm Birth Management, Maternal and Child Health Division; ICDDRB, Dhaka, Bangladesh, December 29, 2015.
5. *Arsenic in Drinking Water: Solving a Health Crisis by an Appropriate Filtration Technology*, Lecture in Global Non-communicable Diseases. (GCH 650), George Mason University, Fairfax, VA. Nov 2, 2015.
6. *Measurement of noncovalent association and partitioning of volatile solutes by equilibrium headspace gas chromatography: Applications in solvent extraction, surfactants, and nanoparticles.* Washington Chromatography Group, Washington D.C. Nov 12, 2014.
7. *Arsenic poison in drinking water: Solving a health crisis through a simple and effective filtration technology.* Department of Chemistry, University of Pittsburgh, October 16, 2014. (225th anniversary Pitt Medallion Acceptance Talk)
8. *Water filters based on composite iron matrix: Fundamental studies, production, and deployment.* Department of Chemistry, Louisiana State University, April 25, 2014.
9. *Novel water filters based on composite iron matrix: Fundamental studies, production, and deployment.* Department of Chemistry, George Washington University. Jan 31, 2014.
10. *Arsenic in Groundwater: Sustainable Solution and Social Implications*. 39th AMSE Annual Conference, August 30 to September 2, 2013 (co-located with the ISNA Annual Meeting) at the Walter E. Washington Convention Center in Washington DC.
11. *Arsenic in Drinking Water: Sustainable Mitigation Technologies and Social Implications.* Workshop - Mason global problem solving consortium for water-management and sustainability, George Mason University, July 8 2013. http://masonglobal.gmu.edu/global-problem-solving-consortium/water-management-and-sustainability-workshop-at-mason-summer-2013/
12. *Solid Phase Micro-extraction: Novel Applications.* Department of Chemistry and Biochemistry, George Mason University, March 21, 2013.
13. *Arsenic in groundwater: A worldwide health hazard*. Health and Environment (GCH 390), George Mason University, Fairfax, VA. March 20th, 2013.
14. *Composite iron matrix based inline water filters for drinking water arsenic mitigation in Turkey*, Aksaray University, Aksaray, Turkey. February 19, 2013.
15. *Novel arsenic filters based on composite iron matrix: Fundamental studies, production and deployment* Department of Chemistry, Old Dominion University, Norfolk, VA, USA. Nov 1, 2012.
16. *Arsenic in Water: Environmental Science Perspective*. George Mason University Governor's School – Environmental Science Lecture, Oct 26, 2010.
17. *Potable water - A cost-effective and environmentally sustainable solution using a simple filtration technology*. Seminar organized by AASHA, University of North Carolina, Chapel Hill, USA. April 8, 2010.
18. *Clean drinking water - A cost-effective and environmentally sustainable solution using a simple filtration technology*. Department of Civil, Environmental, and Infrastructure Engineering, Thursday, March 18, 2010.
19. *Our Water: Preventable water related illnesses: Problems,* United Press International, Washington, D. C., September 23, 2009. http://www.upi.com/Special-Reports
20. *Potable water for Bangladesh - A cost-effective and environmentally sustainable solution to addressing a critical need*. Asian Connection for Excellence Week at Exxon-Mobil Research and Engineering, Fairfax, Virginia, USA. May 13, 2009.

21. *Arsenic in Ground Water: Aquatic Chemistry and Mitigation through a Sustainable Filtration Technology.* The Annual Joseph Henry Lecture. The Philosophical Society of Washington, Washington DC, May 16, 2008. http://www.philsoc.org
22. *Appropriate Technology: Making a Difference in People's Lives.* Global Lecture Series, Haworth College of Business, Western Michigan University, Kalamazoo, MI. March 13, 2008.
23. *The SONO Filter: Making a Difference with Safe Drinking Water,* Distinguish Speaker Series, Kalamazoo Math and Science Center, Kalamazoo, MI., March 12, 2008. http://www.kamsconline.com
24. *Arsenic in Drinking Water: Worldwide Crisis and Mitigation through Simple and Effective Filtration Technologies,* Seminar and Reception by Bangla Patriots, George Mason University, Fairfax, VA, Nov 15, 2007.
25. Abul Hussam* and Abul K. M. Munir. *Arsenic in Groundwater: Aquatic Chemistry and Development of a Sustainable Filtration Technology*, Swiss Institute of Technology, Department of Water Resources and Drinking Water- Eawg, Duebendorf, Switzerland, Nov 6, 2007.
26. *Development of a Novel Water Filtration System for Removing Poisonous Arsenic from Drinking Water*, Science Showcase for High End High School Students, George Mason University, October 19, 2007.
27. *Clean Drinking Water: Solving Arsenic Crisis through a Simple Filtration Technology,* Roundtable on EHSRM, Inst of Medicine of National Academies, Washington, DC., Oct 17, 2007
28. *Arsenic in Ground Water: Aquatic Chemistry and Development of a Sustainable Filtration Technology*, Department of Chemistry, University of Maryland, October 11, 2007. (Also lectured in honors class the same day)
29. *Arsenic Poison in Drinking Water: Aquatic Chemistry and Development of a Sustainable Filtration Technology*, Engineers without Borders Conference, Rowan University, NJ, October 5, 2007. (Keynote Speaker)
30. *The SONO Filter Household Water Treatment System,* Engineering Forum on Sustainability, National Academy of Engineering, Washington DC, USA. September 21, 2007.
31. *Arsenic in Drinking Water: Aquatic Chemistry and Mitigation through a Sustainable Filtration Technology.* National Institutes of Standard and Technology Sigma Xi Colloquium, Maryland, USA. September 13, 2007.
32. *Measurement and Environmental Technology Verification for Arsenic Mitigation in Bangladesh,* Federations of Bangladesh America National Association Seminar and Forum, Atlanta, Georgia, September 2, 2006.
33. Abul Hussam* and Abul K. M. Munir, *Arsenic in Groundwater: Aquatic Chemistry and Development of a Novel Filtration Technology*. Department of Chemistry, Dhaka University, Bangladesh. July 1, 2007.
34. Abul Hussam* and Abul K. M. Munir, *Arsenic Free Clean Water and Sustainable Local Technology,* FINAS Foundation Lecture 2007. Asiatic Society of Bangladesh. July 2, 2007.
35. *Measurement and Environmental Technology Verification for Arsenic Mitigation in Bangladesh,* The Bangladeshi-American Foundation Inc., Biennial Bangladeshi-American Convention, July 6, 2007.
36. *Measurement and Environmental Technology Verification for Arsenic Mitigation in Bangladesh,* Bangladesh Medical Association of North America, July 28, 2007.
37. Abul Hussam* and Abul K. M. Munir. *Clean Drinking Water: Solving Arsenic Crisis through a Sustainable Local Filtration Technology*, North South University, Dhaka, Bangladesh, June 28, 2007.
38. *Arsenic in Drinking Water: Aquatic Chemistry and Mitigation through Filtration Technologies,* Institute of Food Science and Technology. Dhaka, Bangladesh Chemical Society, June 26, 2007.
39. Abul Hussam* and Abul K. M. Munir, *A simple and effective arsenic filter based on composite iron matrix: development and deployment studies for groundwater of Bangladesh.* Engineers Institute of Bangladesh, Institute Auditorium, Dhaka, Bangladesh, June 27, 2007.
40. *A Novel Arsenic Filter for Drinking Water Purification.* Prince William County Department of Economic Development Technovation Forum, Virginia, USA, May 17, 2007
41. *Arsenic in Drinking Water: Worldwide Crisis and Mitigation through Simple and Effective Filtration Technologies*. Muslim Community Center, Maryland, USA, May 20, 2007.
42. *Arsenic Poison in Drinking Water: Solving a Health Crisis through a Simple and Effective Filtration Technology*, Asian American Heritage Month Celebration of the Maryland-National Capital Park and Planning Commission (M-NCPPC), May 25, 2007. USA.
43. *Arsenic in Drinking Water: Aquatic Chemistry and Mitigation through Filtration*, Department of Civil and Environmental Engineering, Massachusetts Institute of Technology, Boston, USA. April 26, 2007.
44. *Arsenic in Drinking Water: Chemistry and Mitigation through SONO Filters.* American Association of Bangladeshi Engineers and Architects Seminar, March 31, 2007, Maryland, USA.

45. *Arsenic in Drinking Water: Aquatic Chemistry and Mitigation through Filtration Technologies,* College of Science Seminar, George Mason University, VA, March 22, 2007.
46. *Groundwater Arsenic Mitigation SONO vs. Other Technologies in Bangladesh*, US EPA, Arlington VA, March 8, 2007.
47. *Arsenic Filter Development and Deployment in Bangladesh,* ArcTech Inc, Chantilly, Virginia, July 15, 2005.
48. *Arsenic in Groundwater: Aquatic Chemistry and Fate,* Department of Chemistry and Biochemistry, George Mason University, Fairfax, Virginia. February 10, 2005.
49. *Solving Arsenic Crisis: Chemistry and Mitigation,* North South University, Dhaka, Bangladesh. August 3, 2004.
50. *Arsenic in Groundwater: Mitigation through Sono Filter.* Training on Integrated National Program on Arsenic Mitigation and Promotion of public Health, Organized by Manob Shakti Unnayon Kendro, Kushtia, Bangladesh. August 1, 2004.
51. *Arsenic in Groundwater Aquatic Chemistry and Mitigation,* Chemistry Department, Rajshahi University, Rajshahi, Bangladesh. July 25, 2004.
52. Abul Hussam* and A.K.M. Munir, *Arsenic Disaster: Chemistry and Mitigation,* Fourth Annual Workship-2004 on Social Education with Training and Skill Development: A Means Toward Transforming Human Deprivation into Human Development, Dhaka, Jan 16, 2004.
53. *Dynamic Electrochemistry and Sensors.* Proposed Ph.D. in Physical Sciences at GMU: Sample project in Physical Chemistry/Chemical Physics, Jan 30, 2004. (Teaching and curriculum development related).
54. *Computer Applications for Chemistry,* Department of Chemistry, Jahangirnagar University, Dhaka, Bangladesh, August 21, 2001.
55. *Aquatic Chemistry of Arsenic in Groundwater of Bangladesh,* Department of Chemistry and Chemical Technology, Islamic University, Kushtia, Bangladesh, August 14, 2001.
56. *Aquatic Chemistry of Arsenic Removal from Groundwater of Bangladesh,* Department of Environmental Engineering, Johns Hopkins University, Maryland. October 27, 2000.
57. *A Simple Method for the Removal of Arsenic from Groundwater***.** A Public Awareness Conference in Kushtia, Bangladesh, July 26, 2000.
58. *Understanding Simple Arsenic Removal Methods by Computational Chemical Equilibria***.** Institute of Public Health and NIPSOM Joint Seminar, Dhaka, Bangladesh, August 3, 2000.
59. *Aquatic Chemistry of Arsenic Removal from Groundwater of Bangladesh***.** Department of Chemistry, University of Dhaka, Dhaka, Bangladesh. August 8, 2000.
60. *Measurement of Volatile Organic Compounds by Solid Phase Microextraction.* Department of Chemistry, Jahangirnagar University, Dhaka, Bangladesh, August 12, 2000.
61. *Simple Methods for Removal of Arsenic from Groundwater of Bangladesh*, Community Development Library-a Non Governmental Organization, Dhaka, Bangladesh, August 13, 2000.
62. *Measurement and Speciation of Arsenic in Groundwater of Bangladesh*, Department of Chemistry and Institute of Environmental Science, University of Maryland, College Park, Maryland, March 2000.
63. *Applications of Solid Phase Microextractions in VOC Analysis in the Environment,* Chemistry Department, George Mason University, November, 1999.
64. *Aspects of Volatile Organic Compounds Pollution in Dhaka City*., Atomic Energy Center Dhaka, Bangladesh., August 25, 1998.
65. *Understanding Solute-Surfactant Association Equilibria: Application of Headspace Gas Chromatography.;* Department of Chemistry, Dhaka University, Dhaka, Bangladesh., August 26, 1998.
66. *Electroanalytical Aspects of Arsenic Measurement in the Environment*, Chemistry Department, George Mason University, October 2, 1997.
67. *Measurement of Arsenic in the Environment by Computerized Electrochemical Technique,* ADAB, Dhaka, Bangladesh, August 18, 1997.
68. *Eectroanalytical Aspects of Arsenic Measurement in the Environm*ent, Atomic Energy Centre, Dhaka, Bangladesh. August 17, 1997.
69. *Development of Fast Electroanalytical Method for the Measurement of Arsenic in the Environment, The Report of the Arsenic Test by Local Government Engineering Department (LGED),* LGED, Dhaka, Bangladesh. August 14, **1997**. **(The first report on our arsenic research)**
70. *Method Development for the Study of Solute-Surfactant Interactions by Headspace Gas Chromatography*, Chemistry Department, University of Minnesota, June, 1996.
71. *Measurement of Interaction Parameters of Solute-Surfactant Associations by Headspace Gas Chromatography*, Chemistry Department, George Mason University, 1995.

72. *Electrochemistry in Organized Media*, Chemistry Department, Dhaka University, Dhaka, Bangladesh, July 14, 1993.
73. *Development of a Computerized Electrochemical System and its Applications*; Atomic Energy Centre, Dhaka, Bangladesh, August 18, 1993.
74. *Applications of Headspace Gas Chromatography to Fluid Phase Equilibria of Reversed Phase Liquid Chromatography;* George Mason University, December 5, 1991.
75. *Electrochemical Instrumentation: Evolution of New Voltammetric Techniques;* Atomic Energy Center, Dhaka, Bangladesh, July 13, 1989.
76. *Computerized Electrochemistry: Development of Some New Voltammetric Techniqu*es; George Mason University, May 4, 1989.
77. S. L. Davis, E. D. Johnson, and A. Hussam; *Computers in Undergraduate Chemistry at GMU*; George Mason University, April 30, 1986.
78. *Pulse Chronopotentiometry*; George Mason University, December 8, 1986.
79. *Potentiometric Stripping Analysis*; George Mason University, December 2, 1985.
80. *Precise Measurements of Fluid-Phase Equilibria by Headspace Gas Chromatography*; Eastern Illinois State University, March 4, 1985.
81. *Measurements of Fluid Phase Equilibria by Headspace Gas Chromatography*; George Mason University, March 12, 1985.
82. *Applications of Headspace Gas Chromatography in the Study of Vapor/Liquid Equilibria;* University of Louisville, March 25, 1985.
83. *Rapid Measurement of Vapor/Liquid Equilibria by Headspace Gas Chromatography*; San Diego State University, February 4, 1985.
84. *Speciation of Water at Low Concentrations in Hydrogen Bond Acceptor Solvents*; University of Pittsburgh, December 8, 1982.
85. *Differential Constant Potential Anodic Pulse Polarography;* University of Pittsburgh, August 11, 1982.

POPULAR PRESS AND MEDIA APPEARANCES (partial list)

1. "GMU research addresses world issues", Virginia Business, August 30, 2016. http://www.virginiabusiness.com/news/article/gmu-research-addresses-world-issues
2. "Arsenic danger still not over", Interview with The Daily Star, www.thedailystar.net/.../arsenic-danger-still-not-over-2059.. January 21, 2016.
3. "Design with the Other 90%: CITIES", 4th Episode "Looking Forward. January 2012, "http://itunes.apple.com/us/tv-season/design-with-the-other-90/id481862362 ; SMITHSONIAN CHANNEL HD, Washington DC 20036.
4. SONO filter- a solution for arsenic poisoning, www.**cnn**.com/video/?/video/...**bangladesh**.**arsenic**.**cnn**
5. A la rencontre d'*Abul Hussam*, un Ange Gardien de la Planète inventeur du filtre anti-arsenic pour rendre l'eau potable en Inde et au **...** *www.youtube.com/watch?v=6Glg-qoXYWo*, - Uploaded by Ecologames. May 26, 2011.
6. Keynote speaker: Fundraising event for SONO filter distribution in Bangladesh by Hopkins Top Models, November 22, 2010, Johns Hopkins University, Baltimore, MD, USA.
7. Voice of America. *On water crisis in Bangladesh*, Interview with Masuma Khatun, Sept 22, 2010. *http://www.voanews.com/bangla/news/abul-hussam-interview-102256549.html*
8. Voice of America. *Extensive arsenic contamination in Bangladesh*, Interview with Sarkar Kabiruddin, Sept 05, 2010. *http://www.voanews.com/bangla/news/abul-hussam-interview-102256549.html*
9. US Citizenship and Immigration Services, Keynote Speaker at the Naturalization Ceremony at Fairfax County Government Center, Fairfax, Virginia, May 14, 2010.
10. Voice of America. VOA News - Dr. Abul Hussam Explains Nature Geoscience Article on Arsenic Contamination in Bangladesh's Groundwater, 22-November-2009.
11. Voice of America., US Citizenship and Immigration Services Honor Scientist A. Hussam, by Shameem Chowdhury, Oct 23, 2008. *http://www.voanews.com/bangla/2008-10-23-voa6.cfm*
12. TIME Magazine, Global Heroes of the Environment 2007. *Scientists and Innovators- Abul Hussam* by Madhur Singh. Special issue of TIME Magazine, Oct 19, 2007.
13. *CHEMIST WINS ARSENIC CHALLENGE AWARDS: Million-dollar prize goes to simple system to treat contaminated drinking water*. Chemical Engineering and News (published by American Chemical Society), 2007, *85* (7), pg. 19 by Steve Ritter.

14. *News of chemistry professor's water filter is spreading the world: fighting the hidden poison,* Shamim Ashraf, Pittsburgh Post-Gazette, Health and Science, Section F, August 8, 2007.
15. World wide news release by National Academy of Engineering 2007 Grainger Challenge Prize Gold Award. Feb 2, 2007. This award led to local, national, and worldwide news in popular and professional media including local, national, and international radio and TV interviews in several languages. A few examples are listed below.
16. *GMU Teacher's Ingenuity Nets $1 Million Prize,* Rick Weiss, Washington Post, Metro Section B3, February 2, 2007.
17. Radio interviews: Public Radio- Washington DC, Massachusetts, Seattle Washington, North Carolina, Voice of America Radio- English, Bangla, Hindi, Urdu; Radio Bangladesh.
18. Television interviews: Voice of America TV- Bangla (2) and Urdu, Fox Ch 5, CNN, Washington Ch 56 Darshan, Washington Ch 56 Bangla Vhalobashi; Bangladesh satellite TV channels: Ekushey-ETV, National-NTV, Stamford- STV.
19. *Making Drinking Water Safe: award winning chemist eliminates arsenic in water one village at a time.* Tara Laskowski, MFA 06, The Mason Spirit, Spring 2007, pg 14-15.
20. Invited Speaker, *Panel Discussions on Arsenic Crisis*, Satellite TV Broadcasting, Recorded July 15, 2006, 7:30 PM, STV New York, Broadcasted on July 29, 2006 on STV Satellite Channel.
21. Speaker for Bangladesh: *Answer to Questions on Aquatic Chemistry of Arsenic in Bangladesh,* BCBSNA Newsletter, USA. November 2001.
22. Press Conference, *A Simple Arsenic Removal Method for Groundwater of Bangladesh*, National Press Club, Dhaka, Bangladesh, August 5, 2000. Press report was published in the following national newspaper: The Independent, Daily Star, Financial Times, The New Nation, Vhorer Kagaz, Dainik Inquiliab, Dainik Dinkal, Mahanagor, Ajker Kagaz, Matribhumi, and Dainik Arthaniti.
23. Interview published by W. Lepkowski, *Millennium Special Report: Science Meets Policy in Shaping Water's Future,* Chemical Engineering and News, American Chemical Society, 77(49), 127-134 (1999).
24. Interview published by Mason Gazette, George Mason University, pg. 11, September 1999.
25. Arsenic- The International Conference. Protidhoni, 1999.
26. Letter to the Editor: Arsenic Crisis, Chemical Engineering and News (published by American Chemical Society), 1998.
27. *Autos fouling Dhaka air with cancer-causing compounds*, The Independent, Dhaka, Bangladesh., August 27, 1998.
28. *Arsenic Pollution in Bangladesh: An Analytical Perspective,* BCBSNA Newsletter, USA., March 1998.
29. *Chemistry of Arsenic Removal from Water,* BCBSNA Newsletter, USA., March 1997.
30. *Kushtia district exposed to arsenic contamination,* The Bangladesh Observer, Dhaka, Bangladesh., August 18, 1997.
31. *Science, Technology and National Crisis,* Protidhoni, USA., June 1995.
32. *Environmental Radiation and Health (Paribesh Tejoshkriota and Sashtho),* Biggyan Samoiki (Science Monthly), 10(6), pg. 3-8, August 1973. Bangladesh.
33. *Hydroponics: Farm of the Future (Hydroponics: Vobishoter Khamar),* Biggyan Samoiki (Science Monthly), 10(4), pg. 9-10, June 1973. Bangladesh.
34. *Sixty Years of Science in India by Vhagabontom (Vharote Bigganer Shat Bochor:* Translation into Bangla), Biggyan Samoiki (Science Monthly), 10(7), pg. 7-16, September 1973. Bangladesh.
35. *The Source of Proteins (Protener Utsha),* Biggyan Samoiki (Science Monthly), 10(10), pg. 9-11, November 1973. Bangladesh.

MAJOR CITATION in BOOKS and OTHER PUBLICATIONS

1. **Introduction to Environmental Engineering**, P. Aarne Vesilind, Susan M. Morgan, Lauren G. Heine - 2009 - Technology & Engineering – pg 290. "The first prize of $1 million went to *Abul Hussam* of George Mason University, whose own home in Bangladesh ..."
2. **Principles of Chemistry: The Molecular Science**. John W. Moore, Conrad L. Stanitski, Peter C. Jurs - 2009 - Science – pg 3. "In February 2007 the National Academy announced a winner: *Abul Hussam*, a professor of chemistry and biochemistry at George Mason University…"
3. **SONO Filter, Chemistry in the Community**, 6th Edition by American Chemical Society. W. H. Freeman, NY. Page 475, Oct 31. 2011-2014.

4. **Groundwater Resources: Sustainability, Management, and Restoration** by Neven Kresic (Sep 10, 2008). Page 480: "... Schroeder, D.M., 2006. Field Experience with SONO Filters ..."
5. **Drinking Water Treatment: Focusing on Appropriate Technology and Sustainability (Strategies for Sustainability... by** Chittaranjan Ray and Ravi Jain (Jun 17, 2011), Page 6: "... demonstrated in the SONO filter, now used by approximately ..."
6. **Reviews of Environmental Contamination Volume 197: Arsenic Pollution and Remediation: An International Perspective...** by Hemda Garelick and Huw Jones (Oct 19, 2010). Page 77: "... , Sono Filter ..."
7. **Managing Water** by Richard Spilsbury- 2008. Page 41 "…SONO Filter Study.. In 2007, Bangladeshi chemistry professor Abul Hussam won an important prize for inventing a cheap, simple system for filtering arsenic…"
8. **Dirty, Sacred Rivers: Confronting South Asia's Water Crisis** by Cheryl Colopy (Oct 1, 2012). Page 320: "... simple device, known as the Sono filter, was about $35. At a home ..."
9. **Abul: Webster's Timeline History, 810 - 2007** by Icon Group International (May 1, 2009), Page 67: "... active materials for the Sono filter system has just earned him a ..."
10. **Arsenic Pollution: A Global Synthesis (RGS-IBG Book Series)** by Peter Ravenscroft, Hugh Brammer and Keith Richards (Mar 9, 2009), Page 290: "... The Sono Filter was developed by Abul Hussam…"
11. **The Fairfax County Asian American History Project: A Contemporary History Honoring 143 Years of Asian Residents... by** Ms. Corazon Sandoval Foley (Mar 26, 2010). Page 168: "... Award was presented to Dr. Abul Hussam, Professor and Director of ..."
12. **Patents: Webster's Timeline History, 2007** by Icon Group International (Jun 6, 2009). Page 2: "... deadly cancers. Chemist Abul Hussam has developed a home…"
13. **And Now for the Good News: A Mega-dose of Positive News to Inform, Inspire, and Fill You With Optimism** by Sue Ray (Aug 6, 2007), Page 130: "... the first prize went to Abul Hussam, an associate professor in the ..."
14. **Can Emerging Technologies Make a Difference in Development?** by Rachel A. Parker and Richard P. Appelbaum (Jan 6, 2012). Page 97: "... who developed the inexpensive Sono arsenic filter for Bangladesh ..."
15. **Knowledge Systems of Societies for Adaptation and Mitigation of Impacts of Climate Change Environmental Science...** by Sunil Nautiyal, K.S. Rao, Harald Kaechele and K.V. Raju (Aug 31, 2013), Page 626: "... inexpensive form of arsenic removal, known as the Sono arsenic filter ..."
16. **Earth Materials and Health:: Research Priorities** ...https://books.google.com/books?isbn=0309164494 Committee on Research Priorities for Earth Science and Public Health, Board on Earth Sciences and Resources, Board on Health Sciences Policy - 2007 - "Technology & Engineering ... was being readied for printing, the National Academy of Engineering announced that Dr. Abul Hussam, from George Mason University, had been awarded the ...".
17. **Heroes of Sustainable Development.pdf - Centar Tesla,** www.centartesla.com/docs/Heroes_of_Sustainable_Development.pdf. "Abul Hussam, as distinguished professor of chemistry at George Mason University in Virginia, started explore problem of surface waters arsenic presence."
18. **Human Biology**. https://books.google.com/books?isbn=1305445945, Cecie Starr, Beverly McMillan - 2015 - Science. "In 2008 the national academy of engineering awarded Dr. Hussam a $1 million ... and severe damage to many internal organs. Dr. Abul Hussam, a chemist at .."

GRANT PROPOSALS and PROJECTS

Proposals Awarded

1. *Saving preterm infants with chemical warming padded jacket where incubators are not available*, Bill and Melinda Gates Foundation and Johns Hopkins University. $20,000. (Nov 1, 2012 – April 30, 2014). GMU # 22297.
2. *Studies of Infinite Dilution Activity Coefficients in Fluorous Solvents,* National Science Foundation and University of Pittsburgh. $41,000 (June 2010- July 2013). GMU # 201652
3. *Center for Clean Water and Sustainable Technologies,* Proposal submitted to College of Science, George Mason University for the establishment of a Center where practical solutions can be found for water purification. July 23, 2008. GMU# 221396
4. *Sensitive to Low PPM and Reversible Sensor for CO,* National Institute of Health, Phase II SBIR Subcontract,. Primary: Innocence LLC, CA. $31,000 (April 2009- March 2010). GMU# 201800

5. *Measurements of Infinite Dilution Activity Coefficients in Fluorous Solvents,* National Science Foundation and University of Pittsburgh. $17,024.00. (June 2008- July 2009).
6. *Grainger Challenge Prize for Sustainability: Development of Groundwater Arsenic Filter.* Awarded $1,000,000 Prize by the National Academy of Engineering 2007 Grainger Challenge Prize Gold Award for Sustainability. $250,000 of the prize money is used for research. March 2007-Current. (Remaining $680,000 was donated to Bangladesh NGO for arsenic filter distribution to affected people, $50,000 was given to George Mason Intellectual Properties Inc., and $20,000 was given to Abul Foundation, GMU.)
7. *A Reversible, Colorimetric Hydrogen Safety Sensor Using Tailored Xerogels.* National Science Foundation, SBIR Phase II, Grant No. DMI-0521760. Primary: Innosense LLC. $28,500 June 2006- August 2007.
8. *Measurements of Infinite Dilution Activity Coefficients in Fluorous Solvents,* National Science Foundation and University of Pittsburgh. $28,500. (June 2005- July 2006).
9. Participated in *Proposal for PhD in Physical Sciences,* Interdisciplinary Research Topics for Dissertation: *Dynamic Electrochemistry and Sensors* proposed by Abul Hussam, October 7, 2003. Program approved by SCHEV, 2004.
10. *Development of a Portable Data Acquisition and Control System for Electrochemical Detection in Capillary one Electrophoresis Microchannels.*, Science Application International Corporation (SAIC), Fairfax, Virginia, USA, $10,000, June 1- August 20, 2003.
11. *Spreadsheet Data Analysis in Lower Level Chemistry Laboratories. Departmental Project in Chemistry*. Stephen Davis, Abul Hussam, John Schreifels, and Wayne Stalick, Proposal for 2002-2003 Technology Across the Curriculum, George Mason University.
12. *Development of a Computerized Titration System for Quantitative Chemical Analysis Labor*atory, Grants in Aid for Curriculum Development, George Mason University, $3000, April 1991.
13. *A Precise Study of Solubilization in Ultralow Interfacial Tension Microemulsions*. Petroleum Research Fund (ACS-PRF Type B), $15,000 from September 1989 through August 1991.
14. A graduate research assistantship has been allocated for the study of *Electrochemistry at Lipid Surface Monolayers: An Approach to the Development of Ultramicro Ion Channel Sensors*, George Mason University. $6350 for the 1990 academic year.
15. *Electrochemistry in Microemulsions*, American Chemical Society- Petroleum Research Fellow, Case Western Reserve University, Ohio; Summer 1987; $ 4000
16. *A Proposal for Incorporating a Broad Range of Computer Applications into the Chemistry Laboratory Curriculum*. Sponsors: S. L. Davis and A. Hussam. ($ 120,000 from AT&T). 1986.

Proposals Submitted

17. Hussam, Abul and Delia Senoro. *Study on composite iron matrix based "Sono" filter for the removal of arsenic and boron from geothermal waters for human use.* Proposal number 114970, US-Philippines JP, Submitted August 24, 2014. (not funded)
18. Piexoto, Nathalia and Hussam, Abul., *A manual breathing oxygen concentrator for critical care infants* Submitted to USAID Grand Challenges / Saving Lives at Birth. March 27, 2014, $250,000.
19. NSF Instrumentation Proposal: *Bonding and surface composition of surface complexes on iron based sorbents: Removal of arsenic and other toxic metals from drinking water*, Abul Hussam, in Ultrahigh resolution XPS instrumentation proposal submitted by John Schreifels to National Science Foundation, August 2009. (not funded)
20. *Direct measurement of As(III) in urine as an indicator of recent arsenic exposure: Development of a rapid field analytical tool.*, Bill and Melinda Gates Foundation, $100000, Date submitted- May 28, 2009. (not funded)
21. *Measurement of ketones and nitric oxide in human breath by gas phase electrochemical sensor data logger in the field.*, Bill and Melinda Gates Foundation, $100000, Date submitted- May 28, 2009. Internal Co PI (Dr. Sad Ahmed) (not funded)
22. *Integrative Graduate Research and Traineeship Program (IGRTP), National Science Foundation.* Participated as senior personnel from Chemistry Department from GMU Physics-Chemistry joint proposal. This is a grant for graduate fellowship ($ 40,000/ year). Submitted April 29, 2004.
23. *SST: Collaborative Research on CMOS Integrated 3-Dimensional Electrochemical Sensor Array for Biological, Fluid and Gas Applications with Ultra-Low Detection Capability***,** Submitted 03/01/2004, GMU part : $197,903. (Proposal submitted to NSF Sensor Research Program). Total project proposal for $500,000 in collaboration with S. Ahmadi (PI), C. Korman of George Washington University and R. D. Vispute of University of Maryland. (Resubmitted Oct 1, 2004 as unsolicited NSF proposal for $194,000)

24. *'MEMS Fabricated 2D Separations Chip', EXPLORITORY/DEVELOPMENTAL (R21) BIOENGINEERING RESEARCH GRANTS*, National Institute of Health, Principal investigator: T. Schneider, SAIC. GMU Collaborator: A. Hussam, $75,000 (GMU) Submitted 12/30/03. $275,000 Total.
25. NSF Instrumentation Proposal: (*Electrochemical applications of scanning probe microscopy in groundwater arsenic research- Hussam, A)* - GMU Team, August 2001. (Resubmitted 2002)
26. *Zirconia as an Adsorbent for Arsenic for Drinking Water Analysis and Treatment*, Gary A. Mabbott and Abul Hussam, Proposal submitted to American Water Works Association Research Fund, $150,000, April 1, 1999.
27. *Development of a Single-Chip Electrochemical Microcontroller*; A. Hussam and SBA, Proposal submitted to NSF-SBIR, $ 100,000, June 1995.
28. *Pulse Chronopotentiometry: Experimental and Theoretical Studies*. Proposal submitted for Petroleum Research Fund (ACS-PRF Type B) grant of $20,000. 1987.
29. *Headspace Gas Chromatography with a Membrane Probe: Application to Remote Sample Analysis.* Proposal submitted to Environmental Protection Agency grant of $ 136,000. 1987.
30. *Electrochemistry in Ultralow Interfacial Tension Microemulsions: Applications to Redox Catalysis*, Proposal submitted for consideration for a graduate research assistantship to George Mason University, 1990.
31. *Electrocatalysis by Electron Transfer Coupling of Diffusional Pathways in Microemulsions*, Proposal submitted to Research Corporation grant of $ 21,816 on May 26, 1989.
32. *Solubilization Models and Experimental Studies of Ultralow Interfacial Tension Microemul*sions, Proposal Submitted to the Jeffress Trust, $ 23,979, July 1 1990 to June 30, 1992.
33. *Electron Transfer in Micellar and Microemulsion Media*, Proposal submitted to Research Corporation, (with Prof. Keith Davies) $ 38,866, June 1, 1991 to May 31, 1993.
34. *Electron Transfer in Micellar and Microemulsion Media*, Proposal submitted to American Chemical Society - Petroleum Research Fund (with Prof. Keith Davies) $ 72,727, Sept. 1, 1991 to August 31, 1994.

RESEARCH STUDENTS: THESIS AND PROJECTS

Graduates and Postdoctoral Fellows Mentored

1. Brittany Rapp, 2017-Current. *Noninvasive inductance and conductance sensors for the measurement of nanoparticle properties*. PhD candidate.
2. Sean Park, 2017- May 2019. *Electrochemical Separation and Detection of Chemical Species in Flow Cell: Examination of a Microfluidic Device*. MS thesis, 2019.
3. June Kang, *Characterization of The Acid-Base Properties of Selected Humic Substances and Model Compounds.* MS thesis Committee Member, Department of Chemistry and Biochemistry, March 26, 2019.
4. Corina Cooling, 2015-2016. *Noncovalent sorption and desorption of n-alkylbenzenes at infinite dilution on single-wall carbon nanotubes by equilibrium headspace gas chromatography.* MS thesis, 2016.
5. Kirubel Assegid, 2008 - 2012. *Development of a gas phase chemiluminescence system for the measurement of arsenic in water*. PhD. May 2012.
6. Jinsoo Hong, 2008 – 2012. *Gas-phase electrochemical detection of trace arsenic in drinking water.* PhD. December 2012.
7. Doug Mays, 2007- 2013. *Voltammetric Stripping of Trace Arsenic in a Flow Cell with Gold Wire as Working Electrode*. PhD. May 2013.
8. Mahmoud D. Eljack, 2009 – December 2013. *Thermodynamics of solubilization of hydrocarbons in natural and synthetic surfactants by headspace gas chromatography.* PhD dissertation work.
9. Farhan Ahmed, 2010 – 2012. *Dynamics of inline water filters using composite iron matrix as sorbent.* MS dissertation work. MS dissertation work (incomplete).
10. Said Khiti, 2010 – 2012. *Measurement of vapor solute-solid surface interactions by headspace gas chromatography.* MS dissertation work (incomplete).
11. Kirubel Assegid, 2007. *Development of a chemiluminescence based technique for the measurement of arsenic in environmental and biological samples.* MS thesis, 2007.
12. Dr. Sad Ahamed, Oct 2007- 2010, *Thermodynamics and Kinetics of Arsenic Removal by Composite Iron Matrix.* (Publications)
13. Kristen Perlot Bloschock, *Development of a MEMS-fabricated SU-8 device for 2D separations and Molecular Diffusion Measurements in Saturated Solutions,* PhD dissertation Committee, Department of Physics, Georgetown University, August 23, 2007.
14. Vaughan Woodzell, Summer 2003, *Windows Software Development for the Portable Potentiostat as a Detector for 2D MEMS Lab on Chip.* Science Application International Corporation (SAIC) Research Projects.

15. William. Z. Nakhleh, 1997, MS Graduate Project: *Cycling Studies of Nickel-Hydrogen Battery*
16. Wei Zhang, 1996, Graduate, MS Thesis: *Buckministerfullerene (C_{60}) in Microemulsions* (ACS Publication)
17. Dr. Subshash Basu, 1996, Postdoctoral Fellow, *A Precise Study of Solute-Micelle Interactions by Headspace Gas Chromatography. (*ACS Publication)
18. Shamim Ahmed, 1996, MS Graduate Project: *Electroless Deposition of Copper on Carbon Fibers*
19. Niema Osman, 1996, MS Graduate Project: *Development of Electrochemistry Experiments for Undergraduates*
20. Lulu Gebermehdin, 1994, Graduate, MS Thesis: *Potentiometric Stripping Analysis in a Quiet Solution*
21. S. H. Siddique, 1990, Graduate, MS Thesis: *Electrochemical Behavior of Synthetic Lipid Modified Carbon Fiber Electrodes*

Undergraduate Research Projects Mentored

1. Laor Boonsamer, 1987, Undergraduate research CHEM 451, *Reaction Headspace Gas Chromatography: Measurement of Artificial Sweeteners, Sodium Cyclamate.* Presented
2. Sharma Shobna, 1988, Undergraduate, *Study of Equilibria in Micellar Solution by Headspace Gas Chromatography*. Presented
3. Richard Kendall, 1989, Undergraduate, *Comparison of Differential Pulse and High Performance Differential Pulse Voltammetry in Trace Metal Analysis.* Presented
4. Mark Hixon,1989, Undergraduate, *Development of a General Method for the Study of Solute-Micelle Equilibria by a High Precision Headspace Gas Chromatography (PRF Fund.* Anal. Chem. Publication.). Presented
5. John Thomas, 1990, Undergraduate, *Pressure-Volume Study of a Commercial Headspace Analyzer*
6. Zohra Olumee, 1991, Undergraduate, *Measurement of Hydrophobic Interactions of Benzene by Headspace Gas Chromatography (*PRF Fund, Anal. Chem. publication). Presented
7. Kattrice Lippa, 1991, Undergraduate, *Measurement of n-Butanol in Microemulsions by Headspace Gas Chromatography* (PRF Fund). Presented.
8. Malcolm Pon, 1991, Undergraduate, *Development of a Basic Program for Electrochemistry Experiment with PAR-273 Analyzer*
9. Saam Tabar, 2000, Undergraduate, *Testing of Groundwater for Trace As(III) by Anodic Stripping Voltammetry.* Biology Major. Presented
10. Shehraze Shah, 2000, Undergraduate, *Measurement of Volatile Organic Compounds in the Environment by Solid Phase Microextraction.* Biology Major. Presented
11. Bamshad Tabar, 2000, Undergraduate, *Testing of a High Resolution Protein Electrophoresis System for Clinical Applications.* Biology major.
12. Zeshaan Ahmed, 2000, Undergraduate, *(I) Development of a Membrane Separation System for Arsine and its Application in Groundwater Arsenic Measurement, (II) Hydrogen Bonding of Acid-Base Systems in Hydrocarbon Fuels. (*J. Petroleum Sci. and Tech.). Presented both
13. Syed U Ali, 2002, Undergraduate, *Reflectance Measurement and Microwave Extraction of Filters Containing Air Particulates from Indoor Pollutants. (Fall 2002).* Biology Major. Presented
14. Naseeruddin Qureshi, 2003, *Micro-scale Organic Synthesis and Characterization by Solid Phase Microextraction*, CHEM 451 Undergraduate Research Project, Presented December 5, Fall 2003
15. Naseeruddin Qureshi, 2004, *Thick Film Hybrid Chip Electrochemical Cell for the Measurement of Arsenic in Groundwater,* CHEM 452 Undergraduate Research Project, Presented December, Fall 2004.
16. Kyle Purdy, 2004, *Development of a Virtual Electrochemical System for the Measurement of Arsenic in Ground Water by Using Ultramicroelectrodes in Flow Cells,* $1000 Scholarship to Kyle from University Research Office. Presented in Tech Showcase.
17. Kirubel Assegid, 2005. *Solute Partitoning in FC-70 (Perfluorotripentylamine),* Project supported by National Science Foundation Grant and University of Pittsburgh. CHEM 452 Undergraduate Research Project. Presented
18. Hung Au, Spring 2005. *Stripping Voltammetry with a Quartz Crystal Microbalance Electrode: Measurement of Arsenic in Water*. CHEM 451 Undergraduate Research Project Report.
19. Auteen Brahimi, Fall 2006, *Development of Gas Phase Chemiluminescence Device to Measure Arsenic in Groundwater at Part-Per-Billion.* CHEM 452 Undergraduate Research Project.
20. Jessica Bajkowski, Summer 2007. *Evaluation of arsenic measurement kits and development of reflectance spectrophotometric quantitation technique.* Summer undergraduate researcher from Wagner College, NY, July-August 2007.
21. Faridi Qaium. *Development of Delphi based Data Acquisition and Control Application Software for Custom Analytical Instruments*. Undergrad Research. Summer 2007.

22. Salman Elfekey. *Acid-Base Reactions on the Surface of Composite Iron Matrix.* Undergraduate Honors Student Research Project. June-August 2008.
23. Munif Saza, *Composite Iron Matrix Embedded Fabrics for Water Filtration,* High School Student Project, July – September 2009.
24. Farhan Ahmed, *Gas Phase Chemiluminescence of Arsine-Ozone and Headspace Gas Chromatograhic Measurement of Methylated Arsenic Species.* Senior Undergraduate Research Projects, 2010. (CHEM 451, CHEM 452)
25. Joan Rozario, *Composite Iron Matrix Embedded Fabrics for Arsenic Removal (Parts I and II). Study of* Ag^+ *-* AsH_3 *Reaction by Reflectance Photometry- Application in Trace Arsenic Measurement.* Undergraduate Research Projects, 2010-2011. (CHEM 451 CHEM 452)
26. Yousuf Azim, *Toxicity Characteristic Leaching Procedure.* Biology Honors Undergraduate Research Project, 2010
27. Lam Dang, *Surface Complexation Reactions with Composite Iron Matrix Surface.* Undergraduate Research Project, 2011. (CHEM 451)
28. Emilea Brooks Lee, *Sorption of Trace Metals on Composite Iron Matrix*. Undergraduate Research Project, Fall 2012. (CHEM 451- incomplete)
29. Rachael Ann, *Equilibria of trace alkylbenzenes at infinite dilution with Humic acid and polyvinyl pyrrilidone coated gold nanoparticles.* Undergraduate Research Projects (CHEM 451-452). Fall and Spring, 2014.
30. Shayer Chowdhury, *Combating arsenic poisoning in Bangladesh: Development and test of inline water filter* Fulbright undergraduate scholar from Johns Hopkins, Oct 6 2014 – May 2015.
31. Brittany Rapp, A *Noninvasive Inductance Sensor for the Measurement of Nanoparticles*, Undergraduate Research Projects (CHEM 451, 452). Spring, 2017, 2018.
32. Gautom Subramania, *Development of Arduino Based Titration System for the Identification of Commonly Available Pharmaceutical Preparations*. Undergraduate Research Project (CHEM 355). Spring 2018.
33. Kevin Harris, *Development of Microfluidic Channels with Laser Engraver for Separation Chemistry*, Undergraduate Research Project (CHEM 355). Spring (May) 2019.
34. Arturo Mario, *Development of Arduino Based Interface for Air Particulate Pollution Monitoring*, Undergraduate Research Project (CHEM 451). Spring 2019.
35. Tristan Moon, *Non-covalent interactions of n-alkylbenzenes at infinite dilution with silica nano particles during hydrolysis of triethyl orthosilicate (TEOS).* Honors Research Project (CHEM 451 and CHEM 456), Fall 2018 and Spring 2019.
36. Angelica Frederic, *Development of an isothermal flow microcalorimeter (IFMC) and exploring its practical biological and chemical applications*. Undergraduate and OSCAR Research Projects (CHEM 451 and CHEM 456), Fall 2018 and Spring 2019.
37. Ume Tahir, *Equilibrium Headspace Gas Chromatographic Studies of Noncovalent Interactions of Perfume Molecules with Sodium Dodecyl Sulfate and Human Serum Albumin*. Undergraduate and OSCAR Research Projects (CHEM 451 and CHEM 456), Fall 2018 and Spring 2019. Codirector: Dr. Pritha Roy.

TEACHING

Course, Curriculum, and Pedagogical Development

1. CHEM 620/PHYS 533 Modern Instrumentation: team taught for a semester
2. Proposal for PhD in Physical Sciences, Interdisciplinary Research Topics for Dissertation: *Dynamic Electrochemistry and Sensors* proposed by Abul Hussam, October 7, 2003. Program approved by SCHEV, 2004.
3. *Spreadsheet Data Analysis in Lower Level Chemistry Laboratories. Departmental Project in Chemistry*. Stephen Davis, Abul Hussam, John Schreifels, and Wayne Stalick, Proposal for 2002-2003 Technology Across the Curriculum, George Mason University.
4. *Development of a Computerized Titration System for Quantitative Chemical Analysis Labor*atory, Grants in Aid for Curriculum Development, George Mason University, $3000.00, April 1991.
5. *A Proposal for Incorporating a Broad Range of Computer Applications into the Chemistry Laboratory Curriculum*. Sponsors: S. L. Davis and A. Hussam. ($ 120,000.00 from AT&T). 1986.

COURSES INSTRCUTED AT GMU

CHEM 624: Separation Chemistry	1semester (graduate)
CHEM 625: Electroanalytical Chemistry	7 semesters (graduate)

CHEM 610: Modern Instrumentation	8 semesters (graduate)
CHEM 670: Teaching Practicum	5 semesters (graduate)
CHEM 521: Theory of Analytical Processes	7 semesters (graduate) (Now CHEM 821)
CHEM 529: Instrumental Techniques of Anal	7 semesters (graduate)
CHEM 422: Instrumental Analysis (Lecture)	10 semesters
CHEM 423: Instrumental Analysis Lab	16 semesters
CHEM 355, 451, 452: Undergraduate Research	25 semesters
CHEM 490: Senior Seminar	4 semesters
CHEM 350: Computer Applications in Chemistry	1 semester (team taught)
CHEM 315: Organic Lab I	7 semesters
CHEM 318: Organic Lab II	4 semesters
CHEM 321: Quantitative Chemical Analysis	25 semesters
CHEM 211: General Chemistry 1	11 semesters
CHEM 212: General Chemistry 2	15 semesters
CHEM 579: Special topics	
CHEM 790: Graduate Seminar	5 semesters
CHEM 798: Research Projects	
CHEM 799: Master's Thesis	

SERVICE (Departmental and University Committee)

College and the University Committees

1988 – 1992: CAS Risk Management Advisory Committee; 1989 – 1992: CAS Undergraduate Admission Committee. 1990 – 1992: CAS Curriculum Committee (Chair), Library Committee. 2006 - 2007: COS Promotion and Tenure Committee. 2008 – Current: Director, Center for Clean Water and Sustainable Technologies.

Departmental Committees

1986-Current: Served in various capacities as follows:
APR Committee (2014), Graduate seminar coordinator (2 years), Graduate admissions (4 yrs), Budget (Chair), Planning, Salary, Chair-Research and Space (1), General Chem. Lab. Coordinator (4 years), Social Affairs, Departmental Graduate Committee, Curriculum Committee (Chairman), Salary Committee (responsible for designing the merit evaluation template), Research and Space Committee, General Chemistry Lab Coordinator (2 years), Lab Technician Coordinator (3 years), Faculty and staff recruitment committee.

University Student Relation

Advisor to Bangla Patriots – the Bangladesh student organization at George Mason University (2002 - 2018).

Professional

SOCIETIES

American Chemical Society, Chemical Society of Washington. Minnesota Chromatography Forum (1982-1985) Bangladesh Chemical and Biological Society of North America

TECHNICAL REVIEWER (Journals, Funding Agencies, and Institutions)

Analytical Chemistry, Journal of Physical Chemistry, Langmuir, Environmental Science and Technology, American Chemical Society Monographs, Analyst, Journal of Chromatography A, Journal of Chromatographic Science, Analytica Chimica Acta., Journal of Environmental Science and Health - Part A (Special Issue Editor) and Member, Editorial Board Part A and B., Talanta, Electrochimica Acta, Journal of American Society of Civil Engineers, Journal of Environmental Management, Journal of Environmental Pollution, Journal of Environmental Engineering, Journal of Hazardous Materials, Sensor, Chemical Engineering Journal, Water Research, Archives of Environmental Contamination and Toxicology, Journal of Environmental Engineering, J of Taiwan Institute of Chemical Engineers, Journal of Regional Studies in Marine Science.

American Chemical Society- Petroleum Research Fund, National Science Foundation (NSF), NSF SBIR Panel, US National Research Council Report Review Committee on Grand Challenges for Engineering, Qatar National Research Fund (QNRF), Cottrell Foundation, Marine Science Research: King Abdul Aziz University, Saudi Arabia; International Science Foundation (George Soros Fund), USA.; International Union of Pure and Applied Chemistry

(IUPAC), Jadavpur University, Kolkata, India.; Islamic University, Kushtia, Bangladesh.; Yarmouk University, Irbid, Jordan.; Center for Border Health Research, Texas, USA.

CONSULTING ACTIVITIES

- Bioanalytical Systems Inc. USA, *Design and Development of Electrochemical Instrumentation*, 2011-2012
- United Nations Development TOKTEN Project in Atomic Energy Center, Dhaka, Bangladesh: *Development of a Modern Analytical Laboratory for Pollution Analysis*. July to August 1989 and 1993.
- Department of Chemical Engineering, Case Western Reserve University, Cleveland, Ohio: *Electrochemistry in Ultralow Interfacial Tension Microemulsions*. June - August 1987
- Department of Chemistry, University of Minnesota*: Headspace Gas Chromatographic Application in the Measurement of Precise Fluid-Phase Equilibria*. July - August 1985.