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PROFESSIONAL PREPARATION

Ulyanov-Lenin Kazan University, Kazan, Russia ***Optics, Spectroscopy M.S., B.S. 1978***.

Kirov State Technological University, Kazan, Russia ***Physical Chemistry, Electrochemistry, Ph.D., 1984***.

ACADEMIC APPOINTMENTS

2007-present	University of Washington, Seattle, WA, *Professor*
2000-2007	University of Washington, Seattle, WA, *Associate Professor*
1997-2000	University of Washington, Seattle, WA, *Research Assistant Professor*
1991-1997	University of Washington, Seattle, WA, *Research Associate*
1984-1991	Kirov State Technological University, Kazan, Russia, *Senior Research Scientist*

SELECTED RECENT REFEREED PUBLICATIONS

Korshin, G.V, A.I.Frenkel, A.L.Ankudinov (2000). XANES study of Cu^{2+}-binding sites in aquatic humic substances. *Environmental Science and Technology,* 34 (11): 2138-2142.

Korshin, G.V., J.F.Ferguson, A.N.Lancaster (2000). Influence of natural organic matter on the corrosion of leaded brass in potable water. Behavior of the lead phase. *Corrosion Science,* 42 (1): 53-66.

Chi-Wang Li, M.M. Benjamin, G.V. Korshin (2000). Use of UV spectroscopy to characterize reactions between NOM and free chlorine. *Environmental Science and Technology,* 34 (12): 2570-2575.

Benjamin, M.M., P.Kwan, B.Hansen, G.V.Korshin (2001). Use of iron oxide coated sand to remove strontium from simulated Hanford tank wastes. *Environmental Science and Technology,* 35 (24): 4905-4909.

Korshin, G.V., M.D.Jensen (2001). Electrochemical reduction of haloacetic acids and exploration of their removal by electrochemical treatment. *Electrochimica Acta,* 47 (5): 747-751.

Korshin, G.V., M.M.Benjamin, Hong-Bin Xiao (2001). Interactions of chlorine with natural organic matter and formation of intermediates: Evidence by differential spectroscopy. *Acta Hydrochimica et Hydrobiologica* 28 (7): 378-384.

Wells Wu, M.M.Benjamin, G.V.Korshin (2001). Effects of thermal treatment on halogenated disinfection by-products in drinking water. *Water Research*, 35 (15): 3545-3550.

Frenkel A.I., G.V.Korshin (2001). Studies of humic substances and metal-humic complexes by X-Ray Absorption Spectroscopy: current state and future prospects. *Canadian Journal of Soil Sciences,* 81 (3): 271-276.

Li, Chi-Wang, G.V.Korshin (2002). Studies of metal-binding sites in natural organic matter and their role in the generation of disinfection by-products using lanthanide ion probes. *Chemosphere,* 49 (6): 631-638.

Li, Chi-Wang, M.M.Benjamin, G.V.Korshin (2002). The relationship between TOX formation and spectral changes accompanying chlorination of pre-concentrated or fractionated NOM. *Water Research,* 36 (13): 3265-3272.

Korshin, G.V., Wells Wu, M.M.Benjamin, O.Hemingway (2002). Correlations between differential absorbance and the formation of individual DBP species. *Water Research,* 36 (13): 3273-3282.

Lu, Junhe, M.M.Benjamin, G.V.Korshin, H.Gallard (2004). Reactions of the flavonoid hesperetin with chlorine: Mass-spectroscopic studies and spectrophotometric of the reaction pathways. *Environmental Science and Technology,* 38 (17): 4603-4611.

Kuznetsov, An.M., E.D.German, A.N.Masliy, G.V.Korshin (2004). A density functional study of dissociative electron transfer reactions with participation of halogenated methanes *Journal of Electroanalytical Chemistry*, 573 (2): 315-325.

Korshin, G.V., M.Fabbricino (2005). Probing the mechanisms of NOM chlorination using fluorescence: formation of disinfection by-products in Alento River water. *Water Science and Technology: Water Supply,* 4 (4): 227-233.

Korshin, G.V., J.F.Ferguson, A.N.Lancaster (2005). Influence of natural organic matter on the properties of corroding lead surface and behavior of lead-containing particles. *Water Research,* 39 (5): 811-818.

Fabbricino, M., and G.V.Korshin (2005). Disinfection by-products formation and applicability of differential absorbance spectroscopy to monitor halogenation in chlorinated coastal and deep ocean seawater. *Desalination,* 176 (1): 57-69.

Korshin, G.V., Jaeshin Kim, A.B.Velichenko (2005). Comparative study of electrochemical degradation and ozonation of nonylphenol. *Water Research,* 39 (12): 2527-2534.

Korshin, G.V., Jaeshin Kim, A.B.Velichenko, A.I.Frenkel (2006). Electrochemical and XAFS study of effects of carbonate in oxidation of arsenite. *Environmental Science and Technology.* 40 (1), 228-234.

Korshin, G.V., Jaeshin Kim, Lili Gan (2006). Comparative study of reactions of endocrine disruptors bisphenol A and diethylstilbestrol in electrochemical treatment and chlorination. *Water Research,* 40 (5), 1070-1078.

Chang, H.S., G.V.Korshin, Zheming Wang, J.M.Zachara (2006). Adsorption of uranyl on gibbsite: a time-resolved laser-induced fluorescence spectroscopy (TRLIFS) study. *Environmental Science and Technology,* 40 (4), 1244-1249.

Chang, H.S., G.V.Korshin, J.F.Ferguson (2006).Examination of reaction mechanisms and reaction products for the oxidation of EDTA by permanganate at high pH values. *Environmental Science and Technology,* 40 (16), 5089-5094.

Li, Chi-Wang, M.M.Benjamin, G.V.Korshin (2006). Characterization of NOM and its adsorption by iron-oxide coated sand (IOCS) using UV spectroscopy. *Journal of Environmental Engineering and Science*, 5 (6), 467-472.

Korshin, G.V., H.S.Chang, A.I.Frenkel, J.F.Ferguson (2007) Structural study of the incorporation of heavy metals into solid phase formed during the oxidation of EDTA by permanganate at high pH. *Environmental Science and Technology,* 41 (7): 2560-2565.

Korshin, G.V., M.M.Benjamin, H.S.Chang, H.Gallard (2007) Examination of NOM chlorination reactions by conventional and stop-flow differential absorbance spectroscopy. *Environmental Science and Technology,* 41 (8): 2776-2781.

Dryer, D.J., G.V.Korshin (2007) Investigation of the reduction of lead dioxide by natural organic matter. *Environmental Science and Technology,* 41 (15): 5510-5514.

Kim, J., G.V.Korshin (2008) Examination of in situ generation of hydroxyl radicals and ozone in a flow-through electrochemical reactor. *Ozone Science and Engineering,* 30 (1), 113-119.

Korshin, G.V., C.W.K.Chow. M.Drikas (2008). Real time monitoring of disinfection by-products using UV absorption spectroscopy. *Water, Journal of the Australian Water Association* (5), 39-43.

Roccaro, P., H.S.Chang, G.V.Korshin, F.G.A.Vagliasindi (2008). Differential absorbance study of effects of temperature on chlorine consumption and formation of disinfection by-products in chlorinated water. *Water Research*, 42 (8/9), 1879-1888.

Lu, J., G.V.Korshin (2008) A spectroscopic study of the bromination of the endocrine disruptor ethynyl estradiol. *Chemosphere,* 72 (3), 504-508.

Liu, H., G.V.Korshin, J.F.Ferguson (2008). Investigation of the kinetics and mechanisms of the oxidation of cerussite and hydrocerussite by chlorine. *Environmental Science and Technology,* 42 (9), 3241-3247.

Boyd, G.R., K.M.Dewis, G.V.Korshin, S.H.Reiber, A.M.Sandvig, R. Giani (2008) Effects of changing disinfectants on lead and copper release in distribution systems – a review. *Journal of American Water Works Association*, in press.

Dryer, D.J, G.V. Korshin, M. Fabbricino (2008). In situ examination of the protonation behavior of fulvic acids using differential absorbance spectroscopy. *Environmental Science and Technology, in press.*

Korshin, G.V., C.W.K.Chow, R.Fabris, M.Drikas (2008). Absorbance spectroscopy-based examination of effects of coagulation on the reactivity of fractions of natural organic matter with varying apparent molecular weights. Submitted to *Water Research*.

Roccaro, P., Vagliasindi, F.G.A., G.V.Korshin (2008). Changes of NOM fluorescence caused by chlorination and their associations with disinfection by-products formation. Submitted to *Environmental Science and Technology*.

Korshin, G.V., M.F.Benedetti, F.Claret, J.P.Croué, M.Fabbricino, H.Gallard, T.Schäfer (2008). Spectroscopic and structural study of the protonation of aquatic natural organic matter from the Rio Negro basin. Submitted to *Environmental Science and Technology*.

SELECTED BOOKS AND REPORTS

Korshin, G.V., J.F.Ferguson, A.N.Lancaster, Hao Wu (1999). *Corrosion and Metal Release from Lead-Containing Materials: Influence of Natural Organic Matter and Corrosion Mitigation* AWWA Research Foundation and American Water Works Association. Denver, CO.

Croué, J.-P., G.V.Korshin, J.A.Leenheer, M.M.Benjamin (2000). *Isolation, Fractionation and Characterization of Natural Organic Matter in Drinking Water.* AWWA Research Foundation and American Water Works Association, Denver, CO.

Conio, O., M.Chioetto, E.Hargesheimer, G.V.Korshin (contributor), Y.Li (contributor) (2002). *Online Monitoring for Drinking Water Utilities*. .AWWA Research Foundation and CRS Proaqua. (Chapter 7. Organic Monitors)

Korshin, G.V., M.M.Benjamin, O.Hemingway, Wells Wu (2002). *Development of Differential UV Spectroscopy for On-line DBP Monitoring.* AWWA Research Foundation and American Water Works Association, Denver, CO.

Kirmeyer, G., B.Murphy, A.Sandvik, G.V.Korshin, B.Shaha, M.Fabbricino and G.Burlingame (2004). Post-Optimization Lead and Copper Control Monitoring Strategies. *AWWA Research Foundation,* Denver, CO.

Korshin, G.V., M.M.Benjamin, and H.S.Chang (2004). Modeling Disinfection By-Products Formation Kinetics: Mechanistic and Spectroscopic Approaches. *Awwa Research Foundation and American Water Works,* Denver, CO.

Korshin, G.V., Jaeshin Kim, A.B.Velichenko (2004). Development of an Electrochemical System for Arsenite Oxidation in Drinking Water. *Awwa Research Foundation and American Water Works Association*, Denver, CO.

SELECTED RECENT INVITED LECTURES AND SEMINARS

Use of Fluorescence Spectroscopy to Determine the Mechanisms of NOM Chlorination based on Apparent Molecular Weights. Conference on Natural Organic Material Research: Innovations and Applications for Drinking Water. Adelaide, Australia (March 2004).

Current Approaches and Practices to Control Disinfection By-Products in Drinking Water in the United States. University of Naples, Italy (March 2004).

Lead in Drinking Water - Recent Catastrophe in Washington DC and Its Lessons. University of Naples, Italy (June 2005).

Spectroscopy of Natural Organic Matter and Elucidation of Its Intrinsic Reactivity. Swiss Federal Institute for Environmental Science and Technology, Zurich, Switzerland (June 2005)

Needs and Directions of the Environmental Research in the United States. Sichuan University, Chengdu, China (September 2005).

Chlorination and Chloramination: Comparison of Pathways of DBP Generation Based on Spectroscopic Data. Southern Nevada Water Authority, Las Vegas (2006).

Chlorination, Natural Organic Matter and Formation of Disinfection By-Products: Current Practices, Approaches, Theories and Relationships with the Control of Copper and Lead in Drinking Water. University of Catania, Italy (December 2006).

Nuclear Technologies and Their Environmental Implications: A View Based on the History of and Experiences at Hanford Nuclear Reservation. University of Naples, Italy (December 2006).

Straight from the Tap: Monitoring Disinfection By-Products. A series of invited presentations for water industry professionals organized by Australian Water Association and International Center of Excellence in Water Resource Management. Adelaide, Australia (October 2007), Water Corporation, Perth, Australia (November 5, 2007), Sydney Water Corporation, Sydney, Australia (November 9, 2007), Melbourne Water, Melbourne (November 12, 2007), Melbourne Section of Australian Water Association, Melbourne, Australia (November 13, 2007)

Differential Absorbance and Fluorescence for In Situ Studies of Site-Specificity of NOM and Its Interactions with Heavy Metals. Curtin Water Quality Research Center, Perth, Australia (October 30, 2007) and Department of Civil and Environmental Engineering, University of New South Wales, Sydney, Australia (November 10, 2007).

Effects of Carbonate on the Redox Chemistry of Arsenic: Evidence of Voltammetry, EXAFS and Quantum-Chemical Simulations. Université de Paris VII Diderot (April 2008)

Remediation of Contaminated Groundwater at Hanford, Washington: Comparison of Different Approaches. University of Naples and University of Catania, Italy (May 2008).

Application of Differential Absorbance Spectroscopy to Monitor Water Quality in Drinking Water Distribution Networks. SCAN Messtechnik GmbH and Austrian Water Association (April 2008)

Occurrence, Chemistry and Treatment of Arsenic in Drinking Water. Université de Poitiers, France (May 2008).

Drinking Water Quality: Emerging Contaminants and Issues Related to the Performance of Water Distribution Systems, International Symposium on Sanitary and Environmental Engineering, Florence, Italy (plenary presentation) (June 2008).

ONGOING AND RECENTLY COMPLETED PROJECTS

Fundamental Mechanisms of Lead Oxidation: Effects of Chlorine, Chloramine and Natural Organic Matter on Lead Release in Drinking Water (National Science Foundation)

Effects of Change of Disinfectants on Release of Metals in Drinking Water (Awwa Research Foundation)

Mechanisms of Accumulation of Inorganic Contaminants and Radionuclides in Drinking Water Distribution Systems (Awwa Research Foundation)

Characterization of Natural Organic Matter (NOM) in Washington, D.C. Drinking Water (U.S. Environmental Protection Agency)

Methods for the Detection of Residual Concentrations of Hydrogen Peroxide in Advanced Oxidation Processes (WateReuse Federation)

Degradation of Organic Species and Removal of Radionuclides by Permanganate Oxidation of Hanford Tank Wastes (Department of Energy)

Characterization of Adsorbate-Adsorbent Interactions by Time-Resolved Laser-Induced Fluorescence Spectroscopy (Department of Energy)

CLASSES TAUGHT

CEE 577 Surface Water Quality Modeling and Management

CEE 545 Advanced Environmental Chemistry

CEE 543 Aquatic Chemistry

CEE 486 Environmental Analysis Laboratory

CEE 485 Environmental Engineering Chemistry

CEE 350 Introduction to Environmental Engineering

SELECTED SYNERGISTIC ACTIVITIES

Associate Editor of *Water Research*

AwwaRF Committee on Distribution System Water Quality Strategic Initiatives

European Science Foundation Action Group on Heavy Metals in Drinking Water

AwwaRF Organic Contaminants Research Committee

COLLABORATORS AND OTHER AFFILIATIONS

Organization	Location	Collaborator
Australian Water Quality Center	Adelaide, Australia	Drs. Christopher Chow, Mary Drikas
Brookhaven National Laboratory	Upton, New York	Prof. Anatoly Frenkel
Kazan Technological University	Kazan, Russia	Prof. Andrey Kuznetsov
Università di Catania	Catania, Italy	Prof. Federico Vagliasindi
Università di Napoli	Naples, Italy	Prof. Massimiliano Fabbricino
University of New South Wales	Sydney, Australia	Profs. Rose Amal
Université de Paris VII Diderot	Paris, France	Prof. Marc Benedetti
Université de Poitiers	Poitiers, France	Profs. Jean-Philippe Croué, Hervé Gallard
University of Potsdam	Potsdam, Germany	Dr. Michael Kumke

SELECTED AWARDS AND HONORS

Best poster presentation at NOM2008 conference of International Water Association, Bath, United Kingdom, September 2008 (jointly with Dr. Paolo Roccaro, University of Catania)

Institut de Physique du Globe de Paris/Université de Paris Diderot, Invited Professor, 2008

Australian Center of Excellence in Water Resource Management, Visiting Scholar Award, 2007

Environmental Molecular Science Laboratory (EMSL) Fellowship, Pacific Northwest National Laboratory, 2003.

Visiting Scholar Award, Region Poitou-Charente, France, 1999

ASEE Award for Advising of the Best Doctoral Thesis, October 1999 (jointly with M.M.Benjamin)

Best poster presentation at the Annual Conference of the American Water Works Association, Atlanta, GA, 1997(jointly with HDR Engineering Inc).

PROFESSIONAL SOCIETY MEMBERSHIP

American Geophysical Union (2006-present)

American Chemical Society (1995-present)

Association of Environmental Engineering and Science Professors (2000-present)

American Water Works Association (1996-present)

International Humic Substances Society (1996-present)

International Water Association (2004-present)

International X-Ray Absorption Spectroscopy Society (1998-present)

LANGUAGES

English, Russian, French, Italian (all fluent), others