Kartik Chandran, Ph.D.
Earth and Environmental Engineering, Columbia University, New York, NY 10027
Phone: (212) 854 9027; Fax: (212) 854 7081; E-mail: kc2288@columbia.edu
URL: http://www.columbia.edu/~kc2288

(a) Professional Preparation:

Indian Institute of Technology, Roorkee	Chemical Engineering	B.S.,	1991-1995
University of Connecticut, Storrs, CT	Environmental Engineering	Ph.D.,	1995-1999
University of Connecticut, Storrs, CT	Environmental Engineering	Postdoc.,	1999-2001
Virginia Tech, Blacksburg, VA	Environmental Engineering	Postdoc.,	2004-2005

(b) Appointments:

2016 –	Professor, Earth and Environmental Engineering, Columbia University
2011 - 2015	Associate Professor, Earth and Environmental Engineering, Columbia University
2005-2010	Assistant Professor, Earth and Environmental Engineering, Columbia University
2004-2005	Research Associate, Environmental Engineering, Virginia Tech, Blacksburg, VA
2001-2004	Director of Research, Senior Technical Specialist, Metcalf and Eddy, New York, NY
1999-2001	Postdoctoral Fellow, Environmental Engineering, University of Connecticut, Storrs
1995-1999	Research Assistant, Environmental Engineering, University of Connecticut, Storrs

(c) Research Expertise and Specialties:

Environmental microbiology, microbial N- cycling, sustainable sanitation and wastewater treatment, global climate impacts of engineered wastewater treatment practice, environmental biotechnology, microbial ecology of engineered biological waste and water treatment reactors, novel molecular based biokinetic estimation tools, elucidation of microbial biochemical degradation pathways , bioprocess modeling and parameter identification for complex biotransformations.

(d) Selected Honors and Awards:

- MacArthur Foundation Fellow (**2015)**
- Invited participant, National Academy of Engineering 2015 China America Frontiers of Engineering **(2015)**
- Visiting Professor, Royal Dutch Academy of Arts and Sciences (**2014)**
- Fellow, Water Environment Federation (**2013**)
- Water Environment Research Foundation Paul L. Busch Award (**2010**)
- National Science Foundation Early Faculty Career Development Award, CAREER **(2009)**
- National Research Council, National Academies of Science Summer Faculty Fellowship award, hosted by the United States Environmental Protection Agency Headquarters, Cincinnati, OH, (**Summer 2007)**.
- Invited contributor to IPCC in Cities Assessment Report with a focus on the water-energy nexus **(2008)**
- Harry L. Kinsel Award for excellence in technical publications – Metcalf and Eddy. Awarded for authorship of the top technical publication in Metcalf and Eddy worldwide **(2002, 2003)**
- Platinum Award for Engineering Excellence - Implementation of SHARON in New York City– American Council of Engineering Companies, representing Metcalf and Eddy **(2004)**
- Diamond Award for Engineering Excellence - Application of biotechnology tools for froth control– American Council of Engineering Companies, representing Metcalf and Eddy **(2004)**
- National Environmental Achievement Award – Association of Metropolitan Sewerage Agencies, representing Metcalf and Eddy **(2003)**

(e) Industrial and managerial experience:

Served as Senior Technical Specialist and Technical Lead of the Applied Research Program, 2001-2005 at Metcalf and Eddy. Focused on developing and implementing technologies worldwide oriented at energy efficient biological nitrogen removal, reporting to the Chief Engineer of Metcalf & Eddy.

(f) Related Projects:

Prof. Chandran has led several projects globally relating to the development and implementation of biological wastewater treatment and nutrient removal processes. Select projects are presented below.

- **Centers for Water Research on National Priorities Related to a Systems View of Nutrient Management.** Kartik Chandran (co-PI), Environmental Protection Agency,
- **Stabilization of mainstream nitritation-nitritation performance.** Kartik Chandran (co-PI), Water Environment Research Foundation, Hampton Roads Sanitation District
- **I-Corps: Development of the Next Generation Wastewater Treatment Technologies and Infrastructure.** Kartik Chandran (PI), National Science Foundation
- **Repression of nitrite oxidizing bacteria in mainstream deammonification reactors.** Kartik Chandran (PI), DC Water
- **Strategies for design, startup and control of field-scale anammox reactors.** Kartik Chandran (PI), National Science Foundation
- **Full-plant deammonification for energy-positive nitrogen removal.** Kartik Chandran (PI), Environmental Protection Agency, Water Environment Research Foundation, DC Water, Hampton Roads Sanitation District
- **Molecular Characterization of ANAMMOX Bioreactors.** Kartik Chandran (PI), New York City Department of Environmental Protection
- **Cost-effective strategies to reduce nitrogen discharges into the Long Island Sound: Optimization of partial nitrification and external COD based denitrification at Stamford WPCA.** Kartik Chandran (PI), National Fish and Wildlife Foundation and matching support

(g) Selected Publications (students and post-docs underlined, * corresponding author:

1. Kim, Y. M., H. Park, and K. Chandran*. **2016**. Nitrification inhibition by hexavalent chromium Cr(VI) – Microbial ecology, gene expression and off-gas emissions. *Water Research* 92:254-261.
2. Ma, Y., S. Sundar, H. Park, and **K. Chandran*, 2015,** "The effect of inorganic carbon on microbial interactions in a biofilm nitritation-anammox process", *Water Research,* 70, 246-254
3. Courtens, E. N. P., H. D. Clippeleir, S. E. Vlaeminck, R. Jordaens, H. Park, **K. Chandran** and N. Boon, **2015,** "Nitric oxide preferentially inhibits nitrite oxidizing communities with high affinity for nitrite", *Journal of Biotechnology, 193,* 120-122
4. Park, H., S. Sundar, Y. Ma and **K. Chandran*, 2015** "Differentiation in the microbial ecology and activity of suspended and attached bacteria in a nitritation anammox process", *Biotechnology and Bioengineering,* 112(2), 272-279
5. Regmi, P., M. W. Miller, B. Holgate, R. Bunce, H. Park, **K. Chandran**, B. Wett, S. Murthy, C. Bott, **2014** "Control of aeration, aerobic SRT and COD input for mainstream nitritation/denitritation", *Water Research,* 57, 162-171
6. Mehrdad, M., H. Park, K. Ramalingam, J. Fillos, K. Beckmann, A. Deur, **K. Chandran 2014** "Anammox moving bed biofilm reactor pilot at the 26th Ward wastewater treatment plants in Brooklyn, New York: start-up, biofilm population diversity and performance optimization", *Water Science and Technology,* 70 (9), 1448-1455
7. Ahn, J.-H., T. Kwan and K. Chandran (2011). "A comparison of partial and full nitrification processes applied for treating high-strength nitrogen wastewaters: Microbial ecology through nitrous oxide production", *Environmental Science and Technology* 45: 2734-2740
8. Park, H., A. Rosenthal, R. Jezek, K. Ramalingam, J. Fillos and **K. Chandran*, 2010** "Impact of inocula and growth mode on the molecular microbial ecology of anaerobic ammonia oxidation (Anammox) bioreactor communities", *Water Research,* 44(17), 5005-5013.
9. Park, H., A. Rosenthal, K. Ramalingam, J. Fillos and K. Chandran (2010). "Linking community profiles, gene expression and N-removal in anammox bioreactors treating municipal anaerobic digestion reject water" *Environmental Science and Technology* 44: 6110-6116.
10. Ahn, J-H., R. Yu and **K. Chandran* 2008** "Distinctive microbial ecology and biokinetics of autotrophic ammonia and nitrite oxidation in a partial nitrification bioreactor". *Biotechnology and Bioengineering,* 100(6), 1078-1087.