

CHRISTOPHER Y. CHOI

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Dr. Choi has research experience in the area of computational and experimental and computational fluid flow in conjunction with various engineering and environmental applications. His research interests include: (i) Real-time Water Quality Measurements and Computational Simulations of Solute Transport in Water Distribution Systems, (ii) Microbial Risk Assessment, (iii) Dispersion and Fate of Chemicals and Pathogens in Water Distribution Systems, and (iv) Development of Water Quality Model and Code Development for Pressurized Pipe Networks.

CHRONOLOGY OF EMPLOYMENT (all at the University of Arizona)

- 7/06-Present **Professor**, Department of Agricultural and Biosystems Engineering
& Dept. of Biomedical Engineering, Graduate Interdisciplinary Program
- 7/00-6/06 **Associate Professor**, Department of Agricultural and Biosystems Engineering
- 7/94-6/00 **Assistant Professor**, Department of Agricultural and Biosystems Engineering
- 7/90-6/94 **Instructor and Research Associate**, Dept. of Aerospace and Mechanical Engineering

CHRONOLOGY OF EDUCATION

- Ph.D.** in Mechanical Engineering (1/87 - 6/90), Colorado State University
(*Military Service in Korea 85-86, honorably discharged as Second Lieutenant.*)
- M.S.** in Engineering Science and Mechanics (8/83 - 6/85)
The University of Tennessee, Knoxville, TN 37996
- B.S.** in Mechanical Engineering (3/79 - 2/83), Ajou University, Suwon, Korea

PUBLICATIONS IN REFEREED JOURNALS (2008)

- Romero-Gomez, P., C. K. Ho, and C. Y. Choi, 2008, Mixing at Cross Junctions in Water Distribution Systems – Part I. A Numerical Study, *ASCE Journal of Water Resources Planning and Management*, 134:3, pp. 284-294.
- Austin, R. G., B. van Bloemen Waanders, S. McKenna and C. Y. Choi, 2008, Mixing at Cross Junctions in Water Distribution Systems – Part II. An Experimental Study, *ASCE Journal of Water Resources Planning and Management* 134:3 pp. 295-302.
- Kim M., C. Y. Choi, and C. P. Gerba, 2008, Source Tracking of Microbial Intrusion in Water Systems Using Artificial Neural Networks, *Water Research*, 42:4-5, pp. 1308-1314..
- O’Shaughnessy, S. A., I. Song, J. F. Artiola, and C. Y. Choi, 2008, Nitrogen Loss during Solar Drying of Biosolids, *Environmental Technology*, 28:1.

PRESENTATIONS AND PROCEEDINGS (2008)

- Choi, C. Y. Improvement of Water Quality Modeling for Microbial Risk Assessment, The Joint U.S. Environmental Protection Agency and Department of Homeland Security Conference on Real-World Applications and Solutions for Microbial Risk Assessment, Washington D.C., April, 2008 (Invited).
- Choi, C. Y. and I. L. Pepper, Recent Advances in Water Quality Modeling in a Pressurized Pipe Network, Singapore Water Week Convention, June, 2008.
- Choi, C. Y., J. Y. Shen, R. G. Austin, 2008, Development of a Comprehensive Solute Mixing Model (AZRED) for Double-Tee, Cross, and Wye Junctions, 10th Annual Water Distribution Systems Analysis Symposium, South Africa.

- Romero-Gomez, P., Z. Li, C. Y. Choi, S.G. Buchberger, K.E. Lansey, and V.T. Tzatchkov, 2008, Axial Dispersion in Pressurized Pipe under Various Flow Conditions, 10th Annual Water Distribution Systems Analysis Symposium, South Africa.
- Romero-Gomez, P., C. Y. Choi, Lansey, K. E., Preis, A., Ostfeld, A., 2008, Sensor Network Design with Improved Water Quality Models at Cross Junctions, 10th Annual Water Distribution Systems Analysis Symposium, South Africa.
- Pepper, I. L., Arnold, R., Bayraksan, G., Choi, C. Y. Lansey, K. E., Scott, C., 2008, Conjunctive Decentralized Dual Water Distribution Systems, 10th Annual Water Distribution Systems Analysis Symposium, South Africa.
- Choi, C. Y. and I. L. Pepper, 2008, Recent Advances in Water Quality Modeling in a Pressurized Pipe Network – Development of AZRED, The inaugural Singapore International Water Week, June 23 - 27. Singapore.
- Lansey, K. E., I. L. Pepper, and C. Y. Choi, 2008, Conjunctive Decentralized Dual Water Distribution Systems, The inaugural Singapore International Water Week, Singapore.

COURSES TAUGHT (at the University of Arizona)

Transport Phenomena, Advanced Transport Phenomena, Fluid Mechanics, Thermodynamics, Intermediate Thermodynamics

PROFESSIONAL SOCIETY MEMBERSHIPS: ASABE, ASCE and AWWA

SOFTWARE DEVELOPMENT: Advanced water quality modeling for water distribution networks (modified EPANET) to address incomplete mixing at junctions. Ver 1.00.01 - beta version. (<http://cals.arizona.edu/~cchoi/AZRED>).

AWARD: Best Paper Award at the 10th Annual Water Distribution Systems Analysis Symposium, 2008. (by Romero-Gomez, P., Z. Li, C. Y. Choi, S.G. Buchberger, K.E. Lansey, and V.T. Tzatchkov, Axial Dispersion in Pressurized Pipe under Various Flow Conditions, 10th Annual Water Distribution Systems Analysis Symposium, South Africa.)

PROFESSIONAL ACTIVITIES

Proposal Reviews: NSF, USDA, BARD, and USAID

Journal Reviews: ASCE Journal of Environmental Engineering, Journal of Water and Health, Transactions of the ASABE, International Journal of Heat and Mass Transfer, and Transactions of the ASME

SYNERGETIC PROFESSIONAL ACTIVITIES

Organizing Committee of the First World City Water Forum (2009), Incheon, Korea

Co-organizer of 12th Water Distribution Systems Analysis Symposium (2010), Tucson, AZ, USA

Laboratory Director, Water Distribution Network Laboratory at the Water Village of the University of Arizona (off-campus, 2005-Present)

Lecturer, DHS/EPA Quantitative Microbial Risk Assessment Summer Institute (2006, 2007)

Organizer/Lecturer of bi-national research and training activities in Jordan and Arizona for Wastewater Reuse and Biosolids Recycling, USAID (2003-Present)

GRANTS

2008-2012 Optimization of dual conjunctive water supply and reuse systems with distributed treatment for high-growth water-scarce regions (NSF, Co-PI)

2006-2008 Development of Simulation Models and Biosensors to Detect Biological Agents in Water Distribution Systems (NSF, PI)

2005-2010 CAMRA - The Center for Advancing Microbial Risk Assessment (Dept. of Homeland Security & U.S. Environmental Protection Agency, Co-PI)