



Department of Civil & Environmental Engineering  
Missouri Water Center (MWC)

Seminar in Environmental Engineering

Time:

Friday, October 31, 2025

2:00 – 3:00 P.M.

Location:

E2511 Lafferre Hall



Dr. Karan Venayagamoorthy is the Fred and June Kummer Endowed Chair of Civil, Architectural and Environmental Engineering at Missouri University of Science and Technology (S&T), where he also holds a joint appointment as Professor of Mechanical and Aerospace Engineering. Prior to joining S&T, he served on the faculty at Colorado State University (CSU) in the Department of Civil and Environmental Engineering since 2008 and was named the Borland Professor of Fluid Mechanics in 2017. Dr. Venayagamoorthy's expertise is in environmental fluid mechanics and hydraulic engineering, with a focus on numerical simulations integrated with experimental methods. His research excellence has been acknowledged through prestigious honors, including the APS-DFD Frenkiel Award for Fluid Dynamics (2014), the NSF CAREER Award, and the Office of Naval Research Young Investigator Award (2012). At CSU, he taught graduate courses in turbulence, numerical methods, and computational fluid dynamics, as well as undergraduate courses in fluid mechanics and engineering dynamics. He was also the recipient of the CSU Board of Governors Excellence in Undergraduate Teaching Award. Dr. Venayagamoorthy earned his BSc and MSc in Civil Engineering from the University of Natal, and his PhD in Civil and Environmental Engineering from Stanford University.

***Innovative approaches for improving the hydraulic disinfection efficiency of small drinking water systems***

**Dr. Karan Venayagamoorthy**

Professor and Kummer Endowed Chair  
Department of Civil, Architectural and Environmental  
Engineering  
Missouri University of Science and Technology

<https://umsystem.zoom.us/j/91084660904?pwd=60ae8GfryXpOU4oMzzJYGayt8ExrBy.1>

Meeting ID: 910 8466 0904

Passcode: 447046

This talk will focus on highlighting the application of computational fluid dynamics (CFD) simulations to gain insights into the flow dynamics of disinfection contact tanks that are used for the treatment of drinking water. The research that will be presented (funded by the Colorado Department of Public Health and Environment, CDPHE) was driven by increasing violations by small systems of the minimum EPA standards for drinking water quality. Over a five-year period, different contact tanks configurations that are often used by small systems were tested to assess their residence time distributions using both tracer studies and computational fluid dynamics (CFD) simulations. A variety of modifications and 'new' systems that were developed as part of this study will be presented to highlight how CFD simulations were employed to explore innovative scenarios for improving the hydraulic disinfection efficiency of such systems. A guidance document was developed from this study that CDPHE now uses to help small drinking water systems in Colorado.