

## Free-to-attend one-day Workshop on



# Modelling Mixing Mechanisms in 1D Water Network Models



*“An interesting day of talks, providing a state-of-the-art review of the challenges and opportunities relating to mixing processes”*

**16<sup>th</sup> January 2018**

**The Diamond, University of Sheffield**

This Workshop will feature state-of-the-art presentations from a range of academics and practitioners concerned with mixing processes. The talks will encompass laboratory, field and numerical methods and highlight challenges associated with understanding and modelling mixing processes.

The event is aimed at academic researchers, water quality modellers, and practitioners with real-life mixing problems. Attend the meeting to:

- Hear reviews of current practice and discussions on future challenges
- Gain an overview of the Fellowship objectives
- Suggest additional areas of interest
- Offer interesting case studies

This event is being held to launch a 5-year EPSRC Fellowship awarded to Professor Ian Guymer. The aims of the Fellowship are to quantify physical flow processes and to develop new approaches for describing solute mixing processes within 1D numerical network models. The Fellowship will integrate numerical analysis, with focussed laboratory and field studies, providing unique data. This will quantify fundamental residence time distributions (RTDs) to more accurately describe the mixing mechanisms present within hydraulic networks. It integrates knowledge across several research fields to address a major societal concern: the occurrence of contaminants in water systems.

Register at: <https://www.eventbrite.com/e/modelling-mixing-mechanisms-workshop-tickets-39291252193>



# Preliminary Programme

09:00 to 09:20 hrs Registration & Refreshments

**Welcome**

*Professor Ian Guymer, University of Sheffield*

**Understanding water: a consumer company perspective**

*Dr Roger Van-Egmond, Unilever*

**RPS – clean, river and sewer assessments**

*Margaret Williams, Clear/RPS*

**USEPA's water quality modelling research program: a perspective on the development of EPANET**

*Dr Robert M. Clark, USEPA-retired, USA*

**Mixing in municipal water distribution systems**

*Professor Steve Buchberger, University of Cincinnati, USA*

**Innovation in water quality hydraulic modelling in Severn Trent Water**

*Chris Gilbert & Oliver Baldock, Severn Trent Water*

11:00 to 11:20 hrs Refreshments

**From rivers to pipes: could mixing be the link?**

*Professor Joby Boxall, University of Sheffield*

**River mixing processes & models**

*Soo Yeon Choi, Seoul National University, South Korea*

**Dispersion in rivers**

*Dr Steve Wallis, Heriot-Watt University*

**Mixing things up: which process am I modelling?**

*Dr Barry Hankin, JBA*

**Integrated catchment modelling - a pragmatic approach**

*Dr Karen Murrell, WRc*

12:40 to 13:30 hrs Lunch

**Urban drainage modelling – bridging the gap between engineering science and strategy**

*Dr Phil Hulme, Environment Agency*

**Management of water networks with limited understanding**

*Dr Jonathan Cutting, WSP*

**Mixing in complex urban drainage structures – the use of 3D computational fluid dynamics (CFD)**

*Dr Virginia Stovin, University of Sheffield*

**Experimental work on multi-phase flows in urban drainage and the importance of mixing phenomena**

*Professor Francois Clemens, TU Delft/Deltares, Netherlands*

**DHI modelling of mixing in urban drainage systems**

*Dr Ole Mark, DHI, Denmark*

15:10 to 15:30 hrs Refreshments & Suggestions

**The need for mixing models in 1-D drilling simulators, background and future visions**

*Dr Johnny Petersen, IRIS, Norway*

**3D CFD analysis of transient turbulent pipe flow**

*Dr Yongmann Chung, University of Warwick*

**Tools and approaches for systems mixing**

*Professor Mike Chappell, University of Warwick*

**Discussion**

*Professor Ian Guymer, University of Sheffield*

17:00 hrs

Close of meeting