



## Improving Water System Efficiency through CFD

### Introduction

75% of the earth's surface is covered with water. It is a precious commodity. However, most of that water is useless: 97% is seawater, 2.5% is frozen in the ice caps, and just 0.5% is fresh and available for use. Worse, part of the 0.5% of water is contaminated, polluted or otherwise degraded, and not fit for consumption. With global population on the rise and emerging markets developing, water is even more crucial to support this demanding need.

In recent years, different technologies have been introduced to the water industry. However, all this technology is facing dynamic challenges in implementation. The common problems are uneven bubble flow for aeration, multiphase application and turbulence modelling. It is expensive and time consuming to come up with process and design improvements to address these problems.

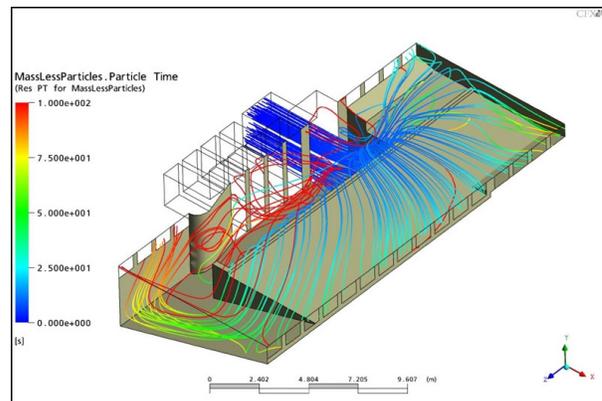
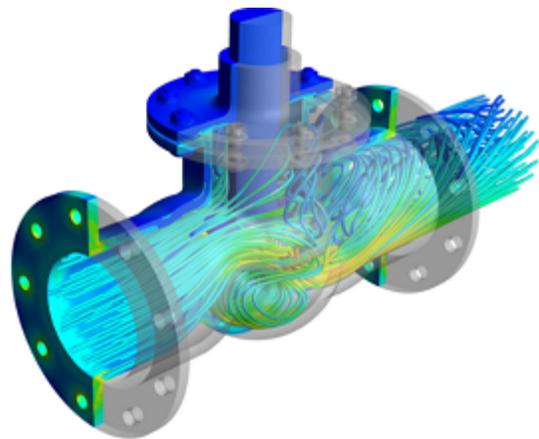
ANSYS offers the diverse engineering simulation capabilities needed to help water companies optimize their process technologies, equipment and overall performance. The proven capabilities in ANSYS tools can assist engineers in designing new processes and equipment as well as optimizing the performance of existing water systems.

### Objectives

This seminar provides an overview of ANSYS CFD in complex applications involving multiphase, turbulence modelling, water hammering, membrane filtration, etc.

### Benefits

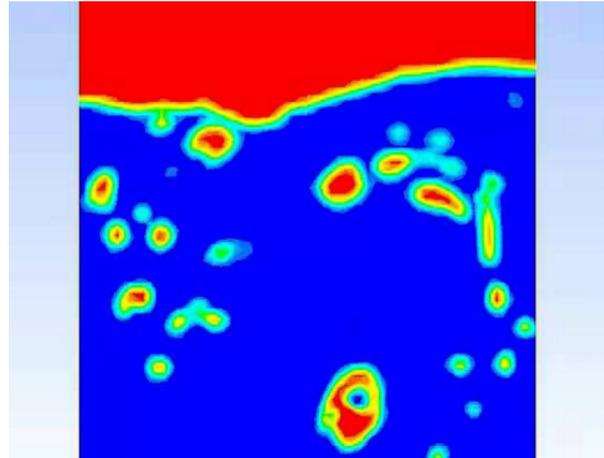
- ANSYS Fluid Dynamics simulation technology helps project engineers and decision makers to obtain critical insight on flow structure, pressure, velocity, aero-acoustic and temperature distribution, thereby helping engineers make better engineering decisions.
- Enables you to predict with confidence that your



products will thrive in the real world. Customers trust our software to help ensure the integrity of their products and drive business success through innovation.

### Who Should Attend

Directors, Managers, Engineers and Researchers in the Water Industry



### What customers say about our solutions

Engineers found that they are able to **dramatically reduce chlorine consumption** in wastewater facilities. **Computer simulation typically costs about 10% as much as building a physical model**, yet it provides engineers with far more freedom to evaluate various alternative tank designs. Improving the efficiency of the reservoir, dramatically reduced chlorine expense while avoiding problems in controlling trihalomethane concentration.

**Carollo Engineers, Inc**

Using ANSYS CFD solution, Dow is able to gain insight into the design and operation of waste water treatment systems and continues to assist the company in on-going innovation. **System performance** was **significantly improved through simulation-based optimization** of aerator positioning and flow rates, inlet sludge placement, and positioning of dissolved oxygen probes.

**The Dow Chemical Company**

Thames Water utilizes CFD simulation to **investigate the performance and possible design** of **various water treatment processes**. Adopted as a design tool in 1992, CFD contributes an understanding of the processes, allowing Thames Water to optimize or check design performance, to effectively troubleshoot, and to investigate scale-up.

**Thames Water Utilities Ltd., England**

"In developing a **revolutionary** fan concept, the Dyson team **investigated 200 different design iterations** using simulation, which was 10 times the number that would have been possible had physical prototyping been the primary design tool."

**Richard Mason, Research Design and Development Manager, Dyson**

### Presenter Profile



Dr Vincent Chai is currently a technical sales consultant in CAD-IT Consultants. He is part of the technical team that support customers in various disciplines including water industry. He graduated from NTU with a Ph.D. Degree in Mechanical and Aerospace Engineering, where his thesis was focused on flapping wings aerodynamics for unmanned vehicles. He has worked as a project officer for DSTA project on debris flight analysis and Research Engineer for NIDEC Singapore.

### Event Information

**Date** : 29 January 2016

**Time** : 9:00 am - 12:30 pm

**Venue** : CAD-IT Consultants (Asia) Pte Ltd

159 Sin Ming Road, #03-05 Amtech Building, Singapore 575625 ( [view map](#) )

**Agenda**

9:00 – 9:30 am	Registration
9:30 – 10:30 am	ANSYS CFD simulation in water industry
10:30 – 10:45 am	Break
10:45 – 12:30 pm	Hands-on session

**Register NOW**

- Register online for this **free** event.
- CAD-IT Consultants reserves the right to cancel or postpone the event due to unforeseen circumstances.

**For enquiries, please call 6508-7575 or email at [caditevents@cadit.com.sg](mailto:caditevents@cadit.com.sg)**

**About CAD-IT Consultants**

Founded in 1991, CAD-IT is a leading global ISO 9001:2008 certified Product Life Cycle Management (PLM), manufacturing and education provider. CAD-IT's mission is to provide world-class solutions and services that enable companies and their supply chains to achieve greater product innovation, quality and productivity with drastically reduced time-to-market and costs.

CAD-IT is honored to have received over 80 international and national awards since its inception for marketing and service excellence. Among its most recent accolades are the Singapore Enterprise 50 Award (2015, 2014, 2013, 2012), Singapore SME 1000 (2014, 2013, 2012, 2011), Asia Pacific Entrepreneur Award (APEA) - Outstanding Entrepreneur Award (2012, 2010, 2009), the Singapore Prestige Brand Award SPBA - Established Brand Award (2012, 2011, 2010, 2009), SPBA - Regional Brand Award 2012 and SPBA - Hall of Fame 2012.

CAD-IT Consultants' suite of PLM solutions include ANSYS (System-level, Multiphysics Simulation), Goldfire Innovator (Innovation Process Management), Moldflow (Plastics CAE), Stampack (Sheet Metal Forming), Deform (Bulk Metal Forming CAE), SpaceClaim (3D Direct Modeler), Mentor Graphics Valor DFM (Design For Manufacturing), Valor MSS (Complete Manufacturing Execution Suite) and Cortona3D (3D Technical Documentation).

Since February 2010, CAD-IT has partnered the Singapore Workforce Development Agency (WDA) to offer Advanced Certificate courses in PLM and Engineering Simulation, under the Workforce Skills Qualifications (WSQ) framework, with the charter to upgrade the technological capabilities of organizations in Singapore so as to enable them to undertake high value-add design, engineering, manufacturing and R&D activities.



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