



# 2019 *Code\_Saturne* & Neptune\_CFD Training

By EDF *Code\_Saturne* & Neptune\_CFD Development Team

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*Code\_Saturne Wechat Public Account*

**Co-sponsored by**  
Électricité De France  
XiAn Jiaotong University

**Code\_Saturne IS EDF'S GENERAL PURPOSE, OPEN SOURCE COMPUTATIONAL FLUID DYNAMICS (CFD) SOFTWARE.**  
<http://code-saturne.org>  
 STEADY OR UNSTEADY FLOW, LAMINAR OR TURBULENT, INCOMPRESSIBLE OR WEAKLY COMPRESSIBLE, HEAT TRANSFER OR NOT, RANS OR LES MODELS

## PROGRAM

\* NUMBER OF PARTICIPANTS IS LIMITED TO 30

Date	Morning	Afternoon
Nov.26		<p><b>Code_Saturne general introduction:</b> CFD in nuclear power plants, balance methodology, finite volumes, industrial examples.</p> <p><b>How to use Code_Saturne:</b> Documentation, Users community, Set-up a study and run.</p> <p><b>Cloud platform demonstration.</b></p> <p><b>Exercise 1:</b> Lid-driven cavity – calculation and post-processing.</p>
Nov.27	<p><b>Some key characteristics of Code_Saturne:</b> toolchain, high performance computing, etc.</p> <p><b>Meshing for a Code_Saturne study:</b> format, element types, mesh joining.</p> <p><b>Exercise 2:</b> 2D flow in a simplified reactor vessel: variable physical properties, user-defined boundary condition, head loss zone.</p>	<p><b>How to develop within user functions of Code_Saturne:</b> main variables and properties, code snippets.</p> <p><b>LES simulation introduction with Code_Saturne</b></p> <p><b>Exercise 3-a:</b> Large Eddy Simulation in a Tube Bundle using Code_Saturne and the GUI</p>
Nov.28	<p><b>Turbulence modelling with Code_Saturne:</b> available models and best practices.</p> <p><b>Exercise 3-b:</b> Large Eddy Simulation in a Tube Bundle using Code_Saturne and the GUI (continued).</p>	<p><b>Multi-physics models fused into Code_Saturne framework:</b> Lagrangian particle tracking, Fire modelling, Groundwater flows, etc.</p> <p><b>Neptune_CFD introduction:</b> advanced simulation on two-phase flow</p> <p><b>Exercise 4-a:</b> Boiling flow in the channel</p>
Nov.29	<p><b>NEPTUNE_CFD 4.0 News &amp; Features</b></p> <p><b>Exercise 4-b:</b> Boiling flow in the channel (continued).</p>	<p><b>Modeling and Simulation policy at EDF</b></p> <p>Introduction of SALOME, Code_Aster and Telemac.</p>

**DISCLAIMER:** Code\_Saturne is an open source software. EDF has the right to use it and share its expertise on the use of Code\_Saturne with third parties. The training will focus on the use of Code\_Saturne and by participating in the seminar the attendees intend to share related expertise. The software and its documentation are in the public domain and are furnished "as-is". EDF, its affiliates, officers, employees, and agents make no warranty, express or implied, as to the usefulness of the software and documentation for any purpose and they assume no responsibility (1) for the use of the software and documentation; or (2) to provide technical support to users.