



CODE_SATURNE Training

November 1-4/2016

By **EDF *Code_Saturne* Development Team**

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Co-sponsored by

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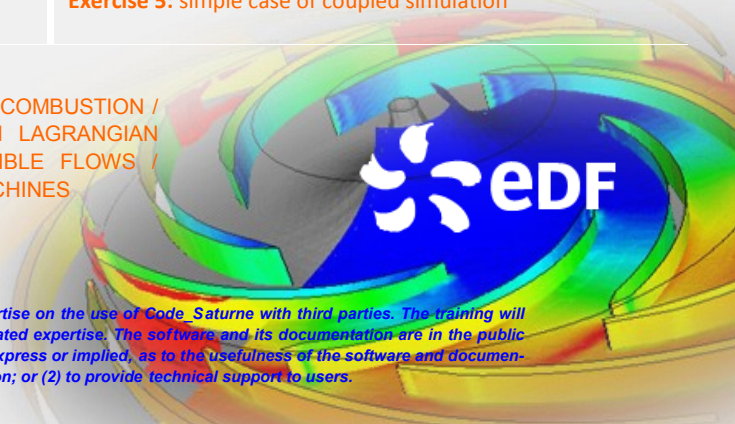
Code_Saturne IS EDF'S GENERAL PURPOSE, OPEN SOURCE COMPUTATIONAL FLUID DYNAMICS (CFD) SOFTWARE.
 HTTP://CODE-SATURNE.ORG
 STEADY OR UNSTEADY FLOW, LAMINAR OR TURBULENT, INCOMPRESSIBLE OR WEAKLY DILATABLE, ISOTHERMAL OR NOT,
 RANS OR LES MODELS

PROGRAM

* NUMBER OF PARTICIPANTS IS LIMITED TO 40 PERSONS

Date	Level	Morning	Afternoon
Nov.1	Basic	Code_Saturne general presentation: theory, application, general structure, mesh constraints & quality checks. Exercise 1: Driven cavity – mesh generation and study case set-up with SALOME_CFD	Exercise 1: Driven cavity - use of Paraview/PARAVIS for post-processing. Exercise 2: Simple junction case (1) – configuration using the GUI.
Nov.2	Basic	Presentation on turbulence model within <i>Code_Saturne</i> and associated good practices. Exercise 2: Simple junction case (2) – configuration using the GUI (continued).	Presentation on industrial case application with <i>Code_Saturne</i> at EDF. Exercise 3: Full domain (1) – variable density, transient boundary condition, probes.
Nov.3	Intermediate	Presentation on code structure (C, Fortran, Python): definition of main concepts. Exercise 3: Full domain (2) – mesh joining option setting-up.	Guide on <i>Code_Saturne</i> installation, versioning, and best practice. Exercise 3: Full domain (3) – head loss, heat sink, parallelized computation.
Nov.4	Advanced	Presentation on simulation & code debug with logging, valgrind and gdb, and good practice for troubleshooting on website forum. Exercise 4: debugging examples	Presentation on coupled simulation via <i>Code_Saturne</i> (CFD) and Syrthes (thermal transfer: conduction & Radiation). Exercise 5: simple case of coupled simulation

INCLUDED SPECIFIC PHYSICAL MODELS: GAS, COAL AND HEAVY-FUEL OIL COMBUSTION / SEMI-TRANSPARENT RADIATIVE TRANSFER / PARTICLE-TRACKING WITH LAGRANGIAN MODELING / JOULE EFFECT, ELECTRICS ARCS / WEAKLY COMPRESSIBLE FLOWS / ATMOSPHERIC FLOWS / ROTOR/STATOR INTERACTION FOR HYDRAULIC MACHINES



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.