

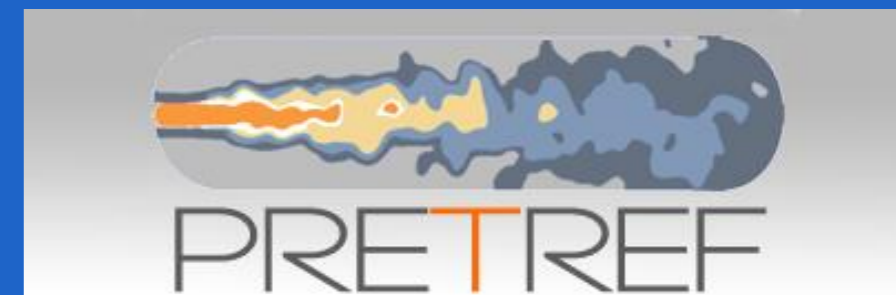
# INTRODUCTION TO PRETREF PROJECT

BART MERCI

DEPARTMENT OF STRUCTURAL ENGINEERING – GHENT UNIVERSITY, BELGIUM

PRETREF PROJECT WORKSHOP

16 OCTOBER 2019, GHENT - BELGIUM



# OUTLINE

- ✓ About the project
- ✓ Project outcomes
- ✓ Project feedback
- ✓ People involved



# ABOUT THE PROJECT

**PRETREF**: Acronym for **PRE**diction of **TUR**bulent **RE**active **F**lows

<http://www.pretref.ugent.be>



A project funded by **Ghent University** through GOA project BOF16/GOA/004.

# ABOUT THE PROJECT



Departments involved within the PRETREF project:

✓ Department of Mathematical Modelling, Statistics and Bioinformatics (**BIOMATH**) - <https://biomath.ugent.be/>

✓ Internet Technology and Data Science Lab (**IDLab**) - <http://media.idlab.ugent.be/>

✓ Department of Flow Heat & Combustion Mechanics (**FlowHeaCom**) - <https://www.ugent.be/ea/floheacom/en>

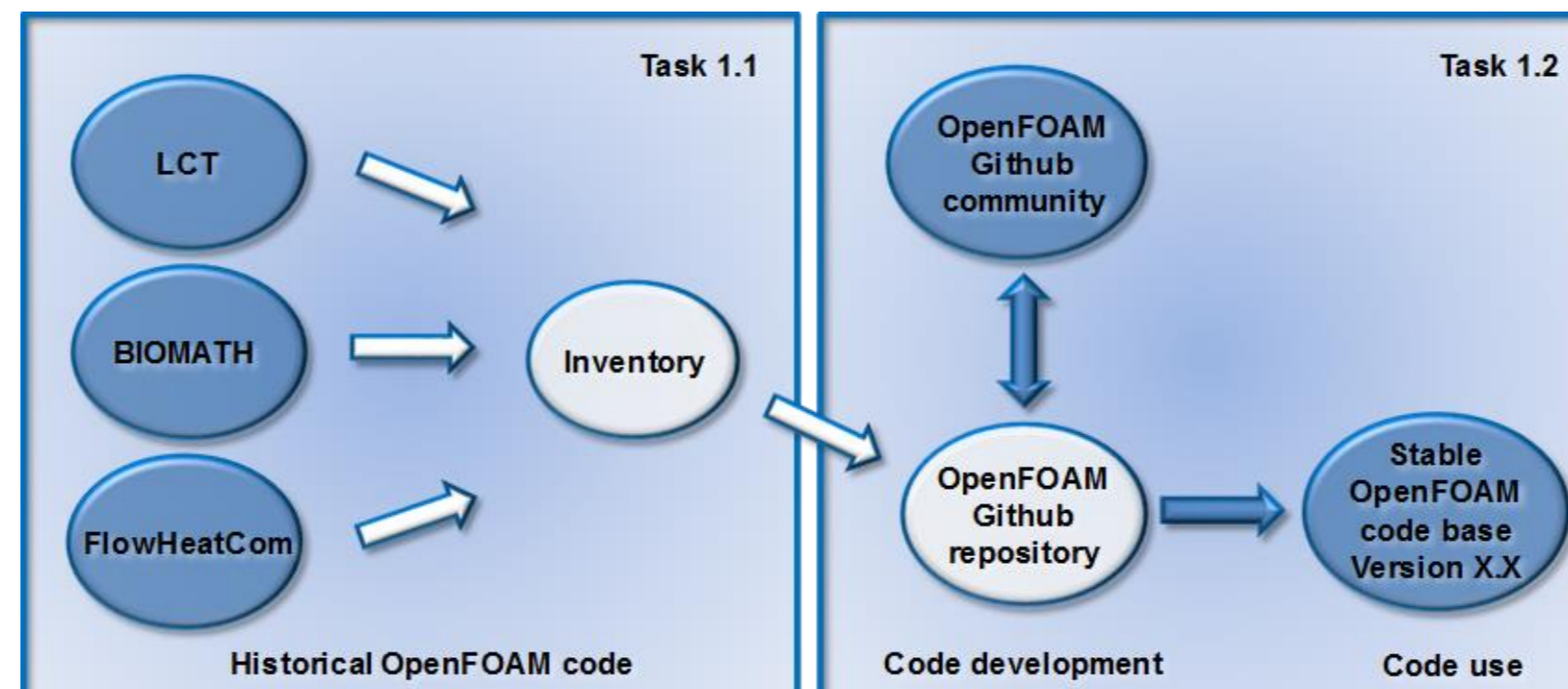
 ✓ Laboratory for Chemical Technology (**LCT**) - <https://www.lct.ugent.be/>  
GHENT  
UNIVERSITY

# ABOUT THE PROJECT



**Objective:** Development of a Large Eddy Simulations (LES), Computational Fluid Dynamics (CFD) code-base for multiscale modelling of several multidisciplinary applications.

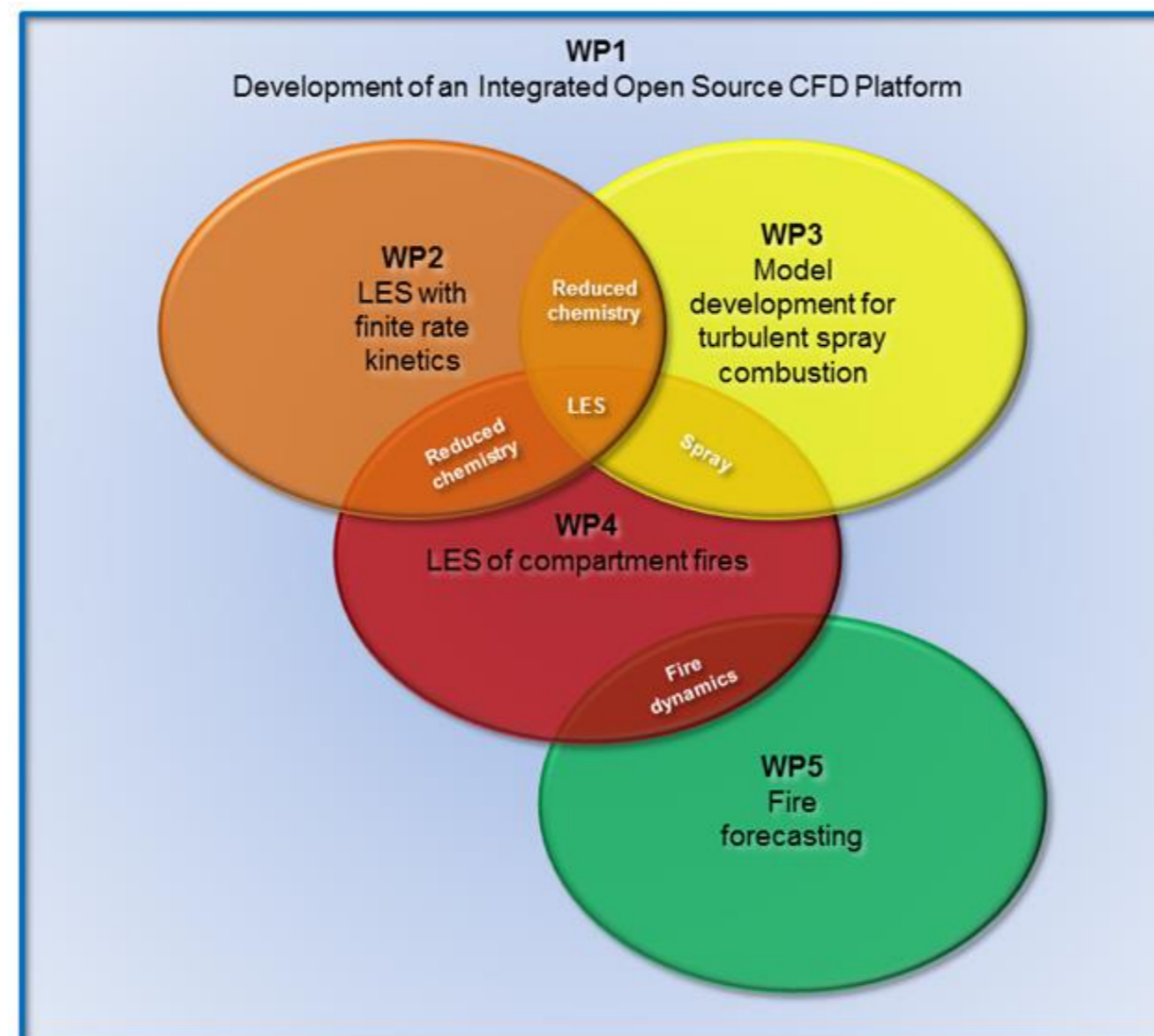
- ✓ Free and easily accessible by the UGent community
- ✓ Open-source - based on the OpenFOAM platform
- ✓ Code sharing and joint code development - based on GitHub
- ✓ Properly documented - wiki page



# ABOUT THE PROJECT



- ✓ Clear overlaps in the research activities between the WP's
- ✓ A brief overview of the different applications investigated within the project is presented in the next presentation.



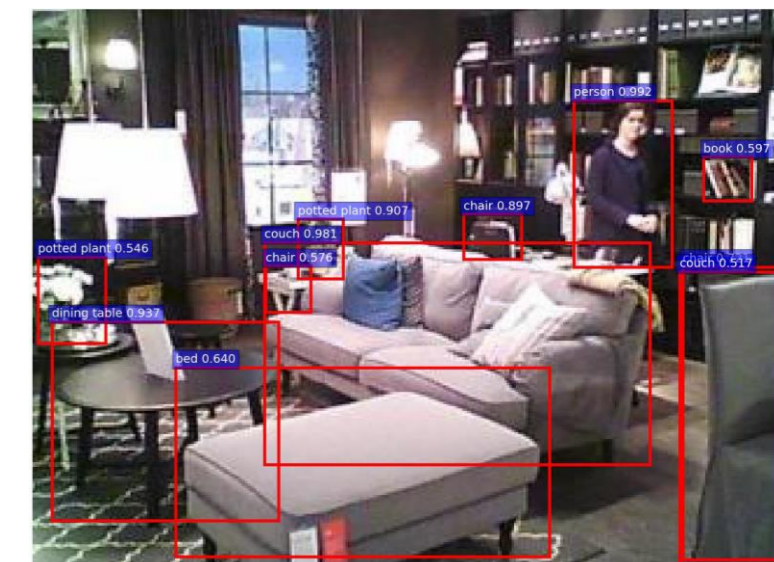
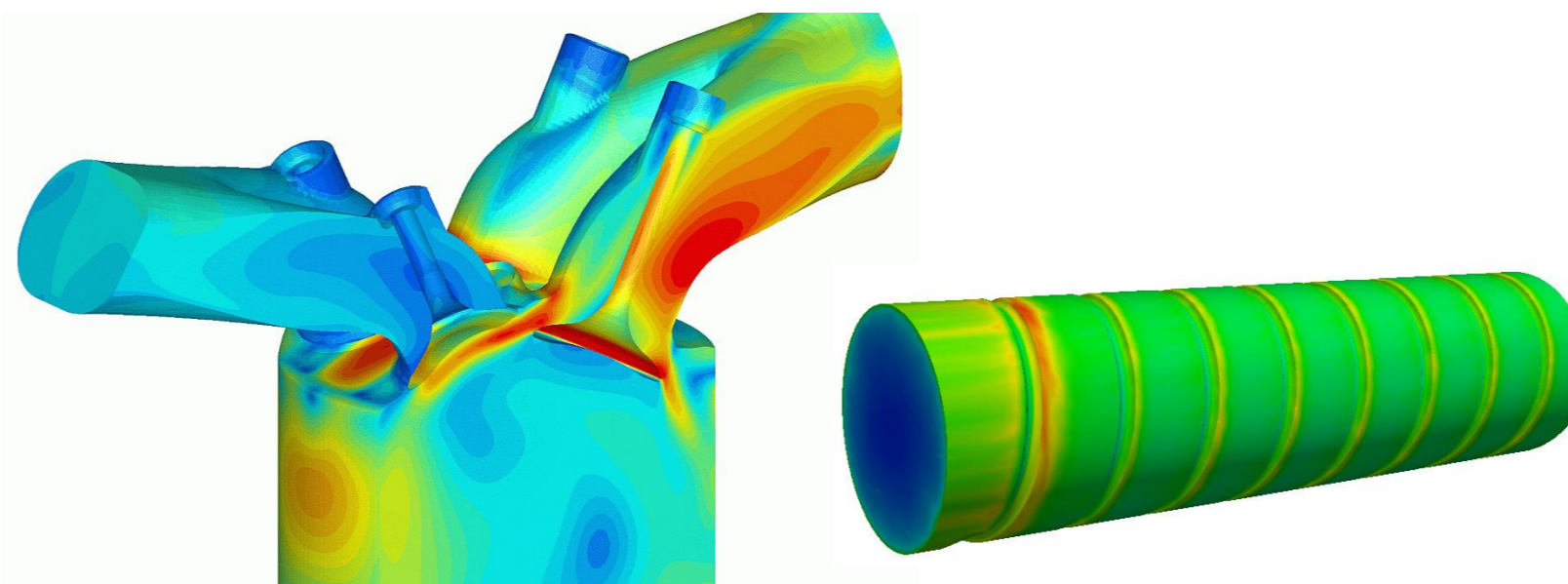
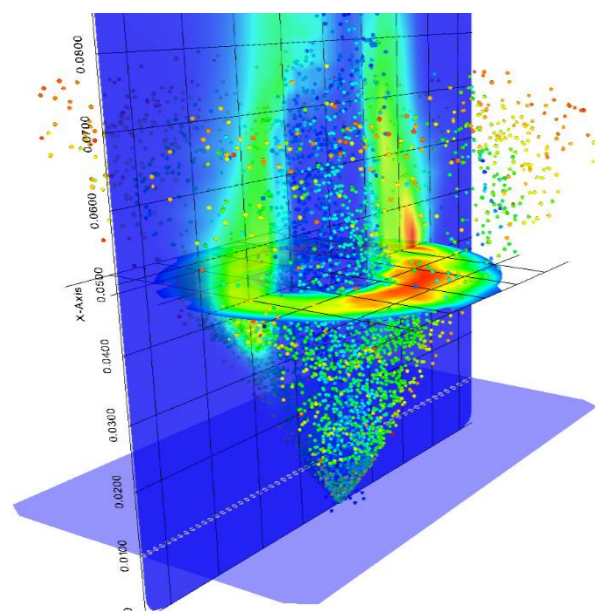
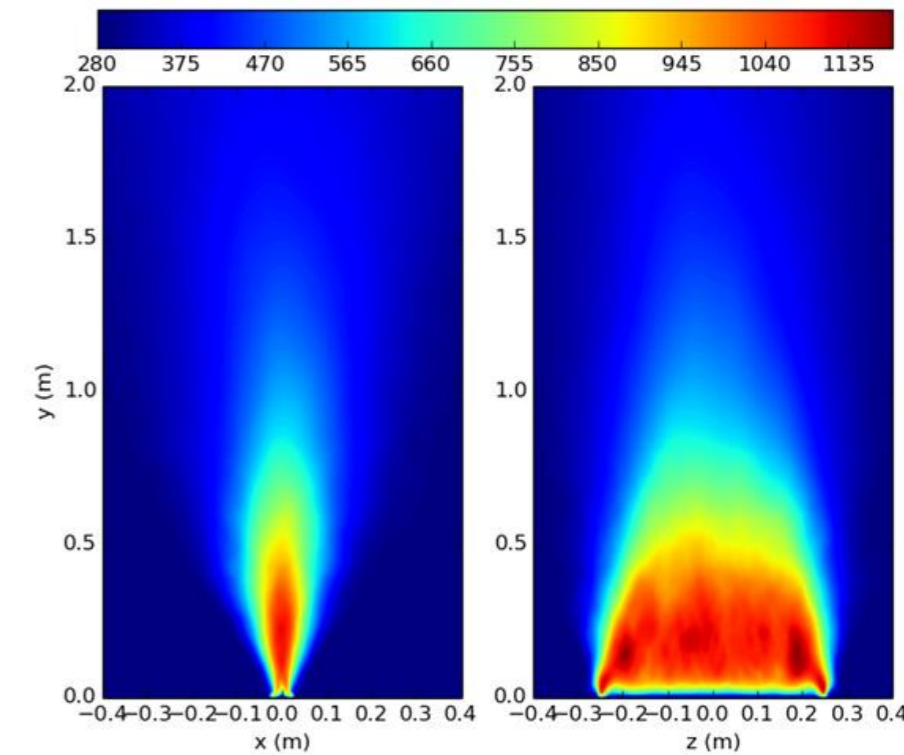


# ABOUT THE PROJECT



The main applications investigated within the PRETREF project included:

- ✓ Bio-systems (**BIOMATH**)
- ✓ Chemical processes (**LCT**)
- ✓ Internal combustion engines (**FlowHeatCom**)
- ✓ Turbulent steady spray flames (**FlowHeaCom**)
- ✓ Fire dynamics (**FlowHeatCom**)
- ✓ Fire forecasting (**ELIS**)



# PROJECT OUTCOMES



- ✓ A free and open-source PRETREF - OpenFOAM repository available through <https://github.ugent.be/gmaragko/pretref>. The UGent – OpenFOAM community can benefit from its use.
- ✓ Better understanding of the physics and model improvements for applications involving reactive flows.
- ✓ Numerous publications in peer reviewed journals and conferences.

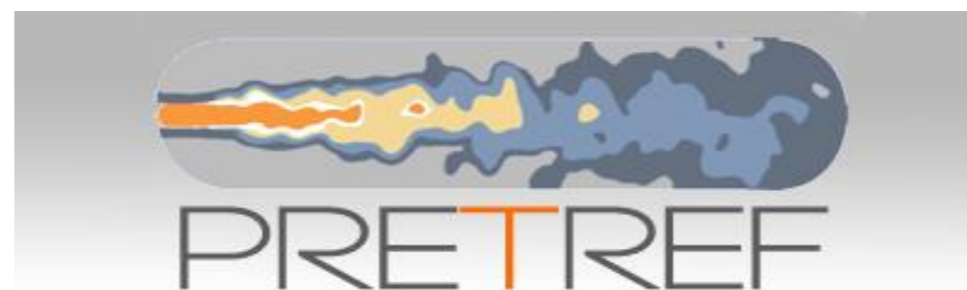


# PROJECT FEEDBACK

PRETREF - OpenFOAM repository - <https://github.ugent.be/gmaragko/pretref>

- ✓ Contributions to the repository are welcome – become a collaborator!
- ✓ Feedback to the repository (e.g., suggestions, bugs, etc.) through the GitHub repository directly or at [Georgios.Maragkos@Ugent.be](mailto:Georgios.Maragkos@Ugent.be)
- ✓ Feedback for the project at [Bart.Merci@UGent.be](mailto:Bart.Merci@UGent.be)

[www.pretref.ugent.be](http://www.pretref.ugent.be)



# PEOPLE INVOLVED



## People involved within the PRETREF project:

- Alessandro D'Ausilio (PhD candidate)
- Gilles Decan (PhD candidate)
- Jens Dedeyne (PhD candidate)
- David Fernandes del Pozo (PhD candidate)
- Boris Kruljevic (PhD candidate)
- Haohan Li (PhD candidate)
- Sepehr Madanikashani (PhD candidate)
- Noel Gómez Mendoza (PhD candidate)
- Laurien Vandewalle (PhD candidate)
- Pieter Reyniers (Dr.)
- David Van Cauwenberge (Dr.)
- Florian Vandecasteele (Dr.)
- Tarek Beji (Postdoc)
- Georgios Maragkos (Postdoc)
- Ivana Stankovic (Postdoc)
- Bart Merci (Prof.)
- Ingmar Nopens (Prof.)
- Kevin Van Geem (Prof.)
- Sebastian Verhelst (Prof.)
- Steven Verstockt (Prof.)
- Jan Vierendeels (Prof.)



# THE END

Thank you for your attention!  
Questions ?

[www.pretref.ugent.be](http://www.pretref.ugent.be)

