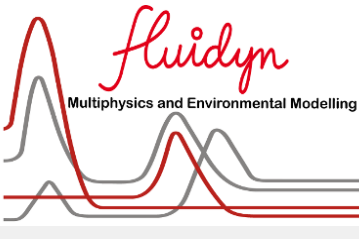


Optimizing Mixer Reactor Performance & Driving Efficiency with CFD



Upcoming Events:

Training on Fluidyn-PANACHE
2nd week of June, 2024
A brief 2 day training program on **Fluidyn-PANACHE**. Dates and Registration links will be sent out soon. This training will be in English and in IST Time zone.

Webinars in French
May, June and July 2024.
Fluidyn-Ventex/Ventfire
May 28th, June 13th, June 26th

Fluidyn-Ventclim
May 30th, June 12th, June 27th

Fluidyn-Panfire
May 31st, June 25th, July 9th

Fluidyn-MP
June 5th, June 19th, July 3rd

Fluidyn-Panache
May 29th, June 11th, June 20th

Please write to contact@fluidyn.com for more details on these webinars.

Past Events:

ROOMVENT 2024, Stockholm, Sweden.
April 22 - 25, 2024
Fluidyn presented 3 abstracts in The 17th Roomvent conference with theme Healthy Air Together. (More details in Conferences Section)

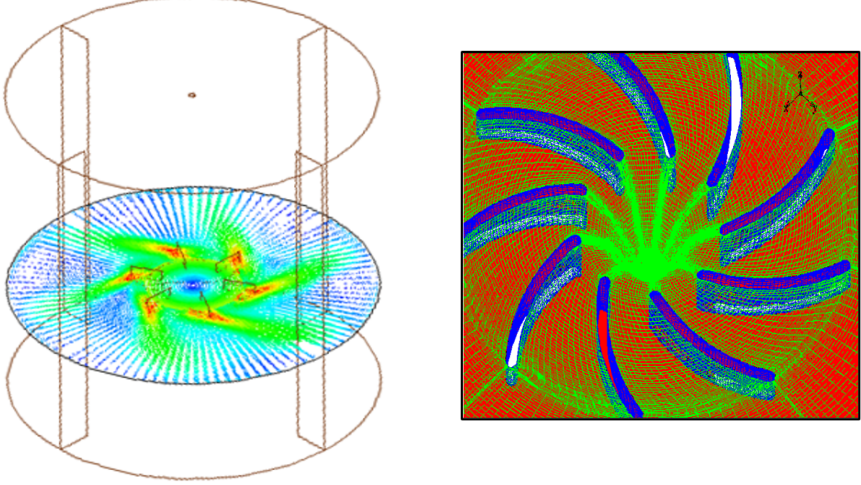
The Salon de l'Analyse Industrielle, Paris
4th April, 2024
Fluidyn participated in a panel on "The Modelling of releases into the environment (gas, odours, dust, effluents)" during the Salon de l'Analyse Industrielle - Le salon des solutions en analyse industrielle et instrumentation de process

Conference in Beijing, China
19th - 21st March 2024
Fluidyn exhibited its products and services at The 4th China petroleum and petrochemical production Safety and emergency management conference and New Technology Achievements Exhibition.

Webinar on Revised MoEF guidelines in India.
January 11th, 2024
Webinar to address Strategies to Align with the Revised MoEF Guidelines for Environmental Clearance. Email us to know more.

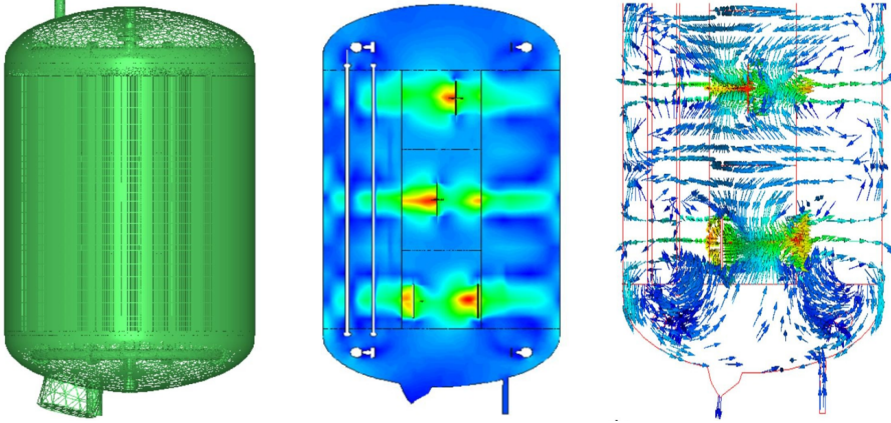
Batch mixing of materials, with impellers, is a process used extensively in a number of industrial sectors such as chemical, petrochemical, oil and metallurgical industries to blend, disperse, suspend and enhance heat and mass transfer. Consequently, a very wide range of stirred tanks are available to suit various applications. But in the absence of an intuitive understanding of the global flows in the tanks and in the impeller region, it is difficult to achieve design optimization. Simulation of tank flows is an alternative to experimental studies and is particularly suited to flow optimization.

Design and scale up of stirred tanks was done previously by analysing the residence-time distributions of a tracer. This approach is limited because it neglects the complexity of flow in most mixing applications. Now Computational Fluid Dynamics (CFD) and advanced experimental techniques such as Laser-Doppler velocimetry (LDV) are increasingly used to obtain better understanding of the mixing process, including detailed knowledge of the flow characteristics.

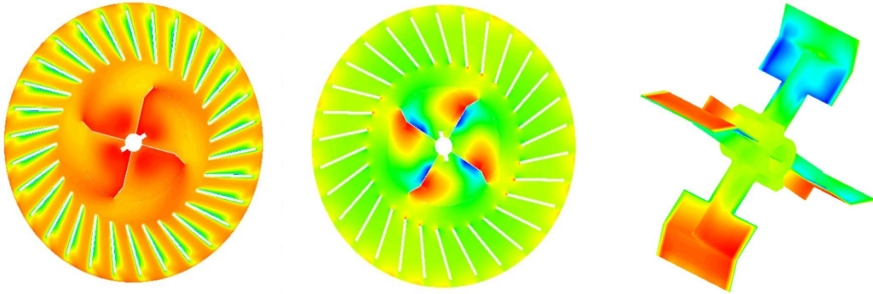


Fluidyn has worked on several fronts to improve such models. **Fluidyn-MP** incorporates turbulence models combining LES (Large Eddy Simulation) and RANS (Reynolds Averaged Navier Stokes). Thus both fine and coarse resolution of turbulence are achieved. Fluidyn has also fully integrated, easy to use, fluid structure modelling for impeller deformation and flow modelling. Thus the structural longevity of the mixer is also ensured.

For an Industrial company, Fluidyn performed the 3D Analysis of flow fields in a mixing reactor. Fluidyn had to carry out a study of the operation of a reactor supplied in the lower part and drawn off in the upper part in which an exothermic reaction takes place. The circulating fluid is mixed using the vertical axis agitators and distributed in 3 levels.



Reactor Mesh, Velocity contours and velocity vectors.



Pressure contour and temperature contour at one of the agitators and stirrers.

To understand the internal workings of the mixing tank from the production point of view, the areas with particular velocity, pressure and temperature characteristics that could modify the structural integrity of the mechanical elements were identified. Fluidyn also identified the low-velocity zones likely to be the source of deposits, investigated possibilities for improving the process by being proactive in relation to the geometric modifications to be made. This study was done with **Fluidyn-MP-NS** software, a software dedicated to the analysis of fluid flows.

Dr. Amita Tripathi, Technical Director at Fluidyn France, appointed as a member of CentraleSupélec's Scientific Committee.



CentraleSupélec, one of France's distinguished Engineering Institutions renowned for its contribution to engineering and science, has recently announced the appointment of Amita Tripathi to its esteemed Scientific Committee for next four years. As the Technical Director at Fluidyn, Amita has demonstrated a deep understanding of complex engineering challenges and a proven track record of delivering innovative solutions. Amita's appointment represents CentraleSupélec's significant step towards strengthening its ties with industry partners and reaffirming its commitment to excellence in research and education. Fluidyn proudly embraces this moment and extends heartfelt wishes of success to Amita.

Fluidyn Extends Heartfelt Welcome and Congratulations to IIT-Kanpur's New Director

Fluidyn congratulates our research partner, IIT-Kanpur and its new director, Prof. Manindra Agrawal on his appointment as director of the Institute. Fluidyn's partner firm Nishkam Technology, is also incubated in IIT-Kanpur. Padmashri awardee Prof. Manindra Agrawal ji stand as a luminary in the realms of computer science and mathematics. With Prof. Manindra's renowned expertise and leadership, we anticipate exciting advancements and achievements under his guidance. Fluidyn Wishes him all the best in this esteemed role!

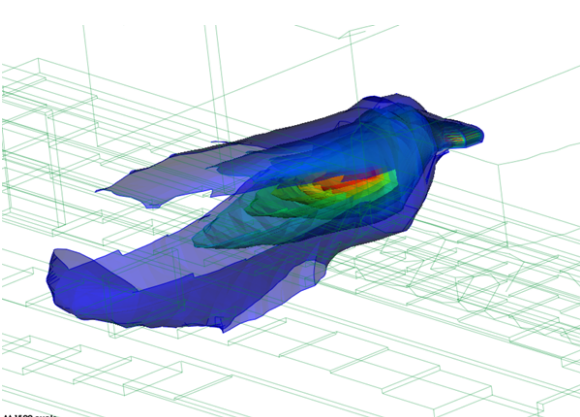
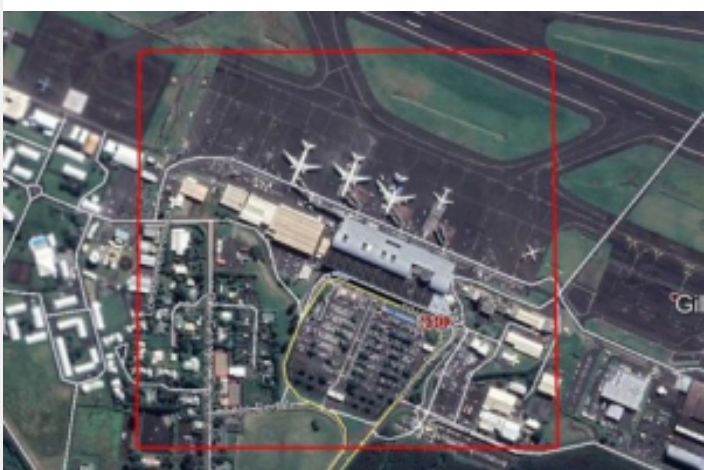


In the photo (from Left)- Fluidyn's CEO - Mr. Sharad Tripathi, Director of IIT-Kanpur - Prof. Manindra Agrawal, Fluidyn's Research Director - Prof Chandan Ghosh.

NEWS:

The Réunion island, a French department in the Indian ocean inaugurated the first bioclimatic terminal in a tropical environment. On March 26 2024, [The Roland Garros airport](#) opened the doors of its bioclimatic terminal dedicated to arrivals. Fluidyn was commissioned by AIA Environment, in charge of conducting the environmental expertise for this project, to study the atmospheric dispersion and impact of odour emissions on the West Terminal Project. Fluidyn used its 3D atmospheric dispersion modelling tool **Fluidyn-Panache** for this study.

Link - [Reunion Island inaugurates the 1st bioclimatic terminal in a tropical environment](#)



PUBLICATIONS:

A paper presented by Fluidyn and its client Vibrattec at the [7th International Conference on Noise, Vibration and Comfort](#) in December 2023 at Kuala Lumpur is now published in the Journal of Physics, Conference Series Vol 2721 - [Globe Valve in single Phase Flow: Experimental and CFD Analysis.](#)

CONFERENCES:

ROOMVENT 2024 - The 17th Roomvent conference with theme Healthy Air Together.
April 22 - 25, 2024 at Stockholm, Sweden
Fluidyn presented the below three papers at this conference:

- User comfort in a laboratory assessed though CFD simulation. (With ORANO Projets).
- Performance assessment & improvement of mixing in ventilation outlets using CFD Simulation.(With ORANO Projets).
- Effect of Aerosols on Hazardous Species Dispersion.

