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# Fluent

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FLUENT is the CFD solver of choice for complex flows ranging from incompressible (low subsonic) to mildly compressible (transonic) to highly compressible (supersonic and hypersonic) flows. Providing a choice of solver options, FLUENT delivers optimum convergence and accuracy for a wide range of flow regimes. The wealth of physical models in FLUENT allows you to accurately predict laminar, transitional and turbulent flows, various modes of heat transfer, chemical reaction, multiphase flows and other complex phenomena. Either structured mesh (FLUENT 4.5) or solution-adaptive unstructured (FLUENT 5.0) can be used.

The technology leadership of FLUENT for multiphase modeling has been further strengthened with the release of Version 4.5. First, new solution methods yield substantial improvements in the efficiency and robustness of free surface and Eulerian multiphase calculations. These methods include the Full Elimination Algorithm (FEA), a fully-coupled implicit approach for multiphase transport equations, and more efficient time-marching techniques. Improvements of an order of magnitude in solution time have been observed for some complex problems.

For granular (fluid-solid) multiphase models, like flows in risers and densely packed beds, FLUENT 4.5 includes enhanced physics that result in improved accuracy and a broader range of application. These enhancements include improvements to the treatment of granular temperature, solids pressure, solids bulk viscosity, interphase forces, and boundary conditions.

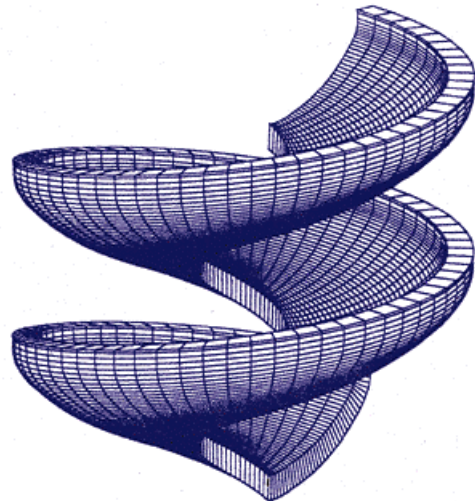
FLUENT 5 introduces multiphase modeling on unstructured meshes, with a new volume-of-fluid (VOF) scheme that yields high accuracy by preserving sharp interfaces between fluid regions. FLUENT 5 also includes an algebraic slip mixture model for very efficient calculation of multiphase applications such as bubbly flows and simpler gas-liquid or granular multiphase flows. A new cavitation model is also included.

FLUENT 4.5 includes many postprocessing enhancements tailored for mixing applications, including reporting of torque, power number, flow number, gas holdup, and computation of flow statistics (averages, standard deviations, minima/maxima) that are useful for blending studies and review of impeller pumping characteristics. MixSim 1.5, the specialty preprocessor for stirred tanks, will ship with FLUENT 4.5 and includes an expanded library of impellers and tank shapes.

For further information, please refer to the following URL:

<http://www.fluent.com/software/FLUENT/main.htm>

Platform: Windows NT  
License restrictions: none  
Number of copies: 20  
Requested by: Kurt Koelling





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