

## Version 6.10 (Oct 14, 2016)

### Library enhancements

#### Linear Algebra

- New preconditioners and smoothers suitable for symmetric and non-symmetric matrices that demonstrate 15-25% decrease in run-time, with the most improvement for parallel simulations.
  - **SSGS**: Efficient preconditioner for asymmetric matrices based on  $IC(0)$  with modified diagonal
  - **USGS**: Efficient preconditioner for asymmetric matrices based on  $ILU(0)$  with modified diagonal
- General stability improvements for GAMG solver.

#### General

- New no-slip wall boundary for vector fields (i.e. momentum equations) with a consistent treatment of the discretization. The **fixedValue** condition for vector fields assumes the vector direction in the cell center next to the wall is exactly parallel to the wall which is not strictly correct.

### Solvers

#### Incompressible

- **pCorrSimpleSolver**: SIMPLE-based incompressible steady-state solver using the pressure correction approach.

#### Compressible

- **explicitDBN SSRFSolver**: density-based explicit compressible solver in single rotating reference frame using the absolute velocity formulation.
- More verbose convergence reporting for explicit solvers.
- Consistency improvements for density-based solvers, in particular for VLES and LES.

### Models

#### Turbulence

- Introduced buffer layer damping switch for **kOmegaSST** based models suitable for high-angle of attack simulations (separated flows).

- Added compressible variants of **kOmegaSSTDES** and **kOmegaSSTDES** DES models.
- Added compressible variant of **gammaReTheta** transition RAS model.
- Improved VLES models for better consistency in the RAS limit.
- Curvature correction option added to remaining **kOmegaSST** based models.