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SIMULATION OF MULTI-BODY SEPARATION OF AEROSPACE VEHICLES BASED ON  
UNSTRUCTURED OVERSET GRIDS TECHNOLOGY

**Abstract**

The multi-body separation of aerospace vehicles was simulated using unstructured overset grids technology. The unstructured grids for different vehicles were generated individually. The exchange of information of different vehicle's grids was achieved by unstructured overset grids technology. An ADT based data structure was used for robust and quick hole cutting of unstructured grids and get the fringe cells immediately. The grid's donor cells stencils which used for interpolation of fringe cells were obtained by "neighbor to neighbor" searching method in the other grids. The interpolation between different grid's information is 2nd order by the least square method. Navier-Stokes equations were solved for flowfield and the 6DOF motion equations were solved for rigid body movements. The numerical simulation results agree well with experiments. The whole computation procedure is accurate and robust.