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**Direct Numerical Simulations of the Flow around a Golf Ball: Effect of Rotation** CLINTON SMITH, Arizona State University, NIKOLAOS BERATLIS, University of Maryland, KYLE SQUIRES, Arizona State University, ELIAS BALARAS, University of Maryland, MASAYA TSUNODA, SRI R&D Ltd. — Golf ball flight is affected by rotation of the ball (lift generation) and dimpling on the surface (drag reduction). Direct Numerical Simulation (DNS) is being developed for the flow around a rotating golf ball using an immersed boundary method. Adding to the computational cost is that the moving body must be re-located as the ball rotates. In the present effort, interface-tracking of the moving body is optimized using the Approximate Nearest Neighbor (ANN) approach. The code is parallelized using domain decomposition and message passing interface (MPI), and parallel performance results are presented for a range of grid sizes. Results are presented from a series of validation cases for flow over a smooth sphere and a golf ball.

Prefer Oral Session  
 Prefer Poster Session

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