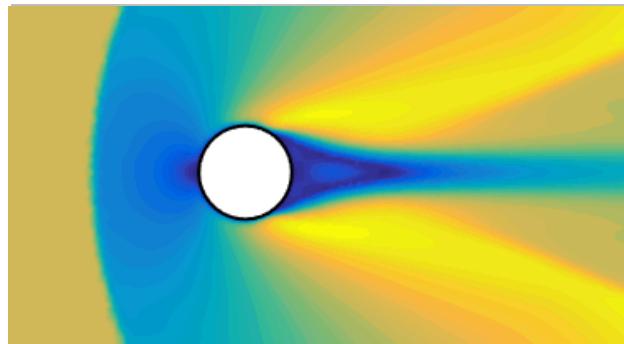


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8/30/2016

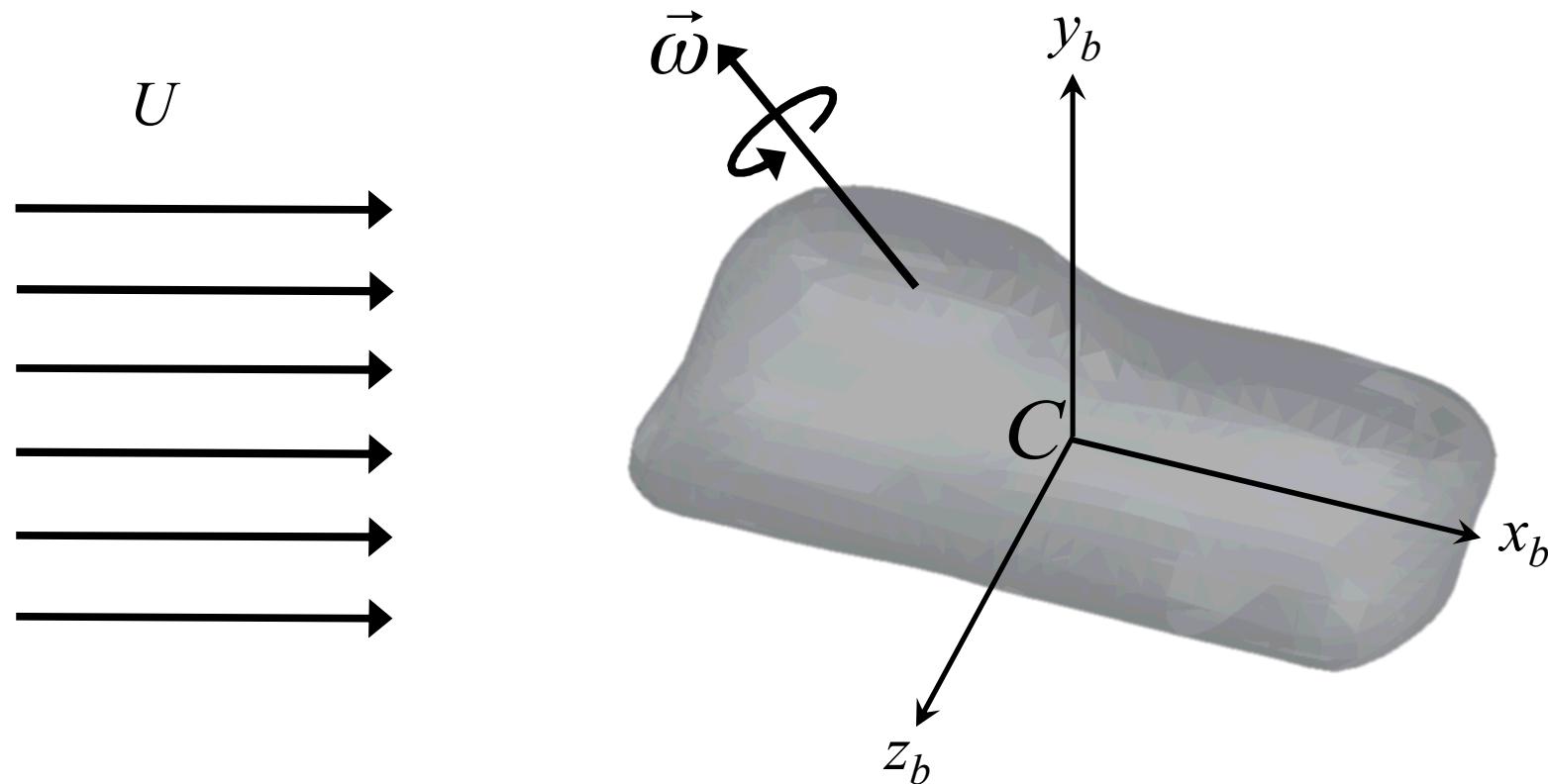
Simulations of High Speed Fragment Trajectories

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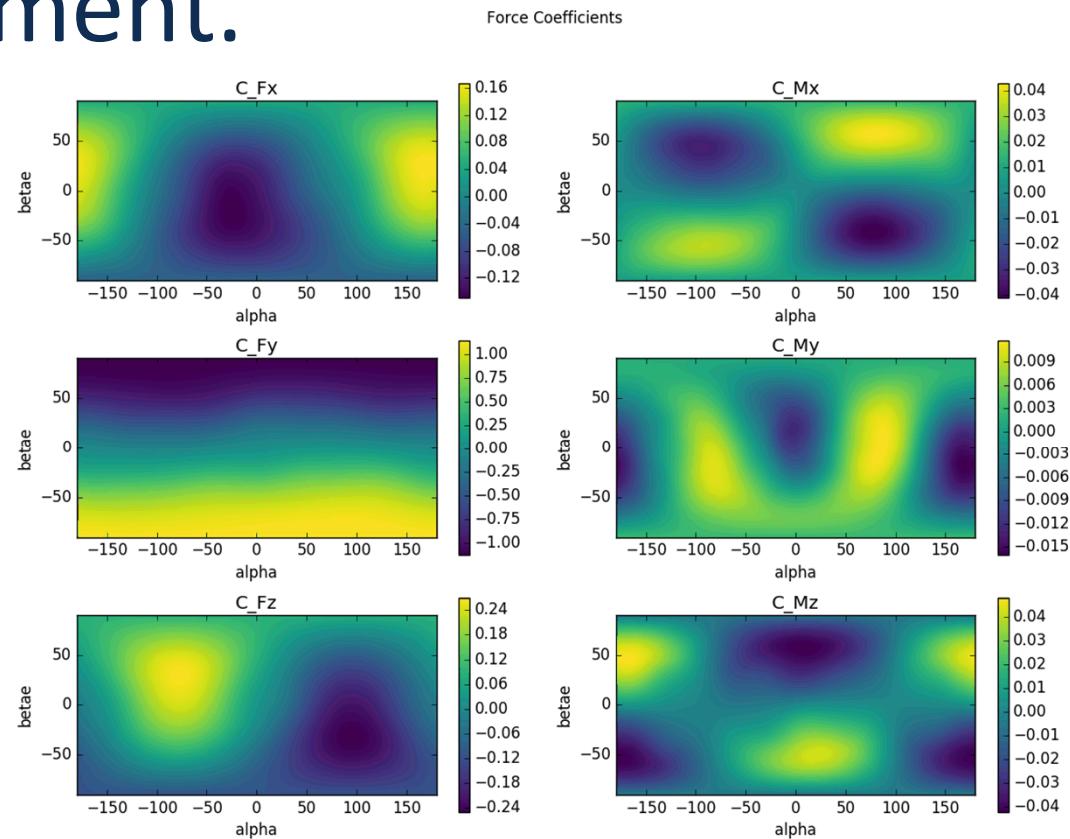
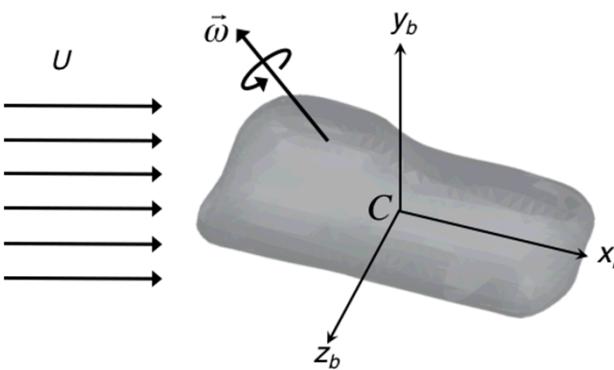
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Forces/moment computed on fragment in steady flow.



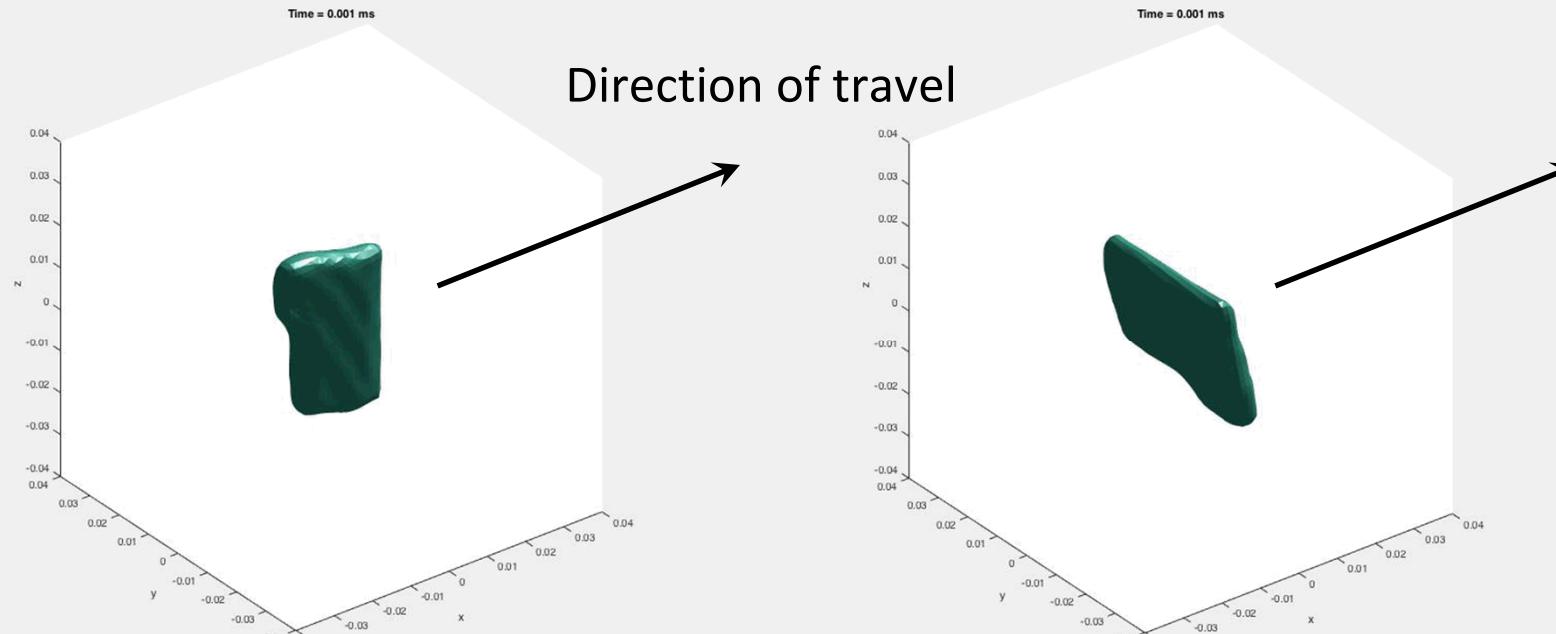
- Sample multiple orientations in rotation space (2 orientation angles)
- Generate aerodynamic database of force/moment coefficients

Aerodynamic database generated for each fragment.



- 6 contour plots of each force/moment coefficient, 1 set per fragment
- Forces/moment linearly interpolated during each time step within 6DOF integration

6DOF trajectory varies based on initial conditions.



(Preliminary results)

- Integrate trajectories using 6DOF solver based on Taos (SAND99-0811)
- Observe chaotic tumbling and stabilized spin behavior

More work required to understand distribution of trajectories.

- Some fragments difficult to mesh
- Automation of simulation procedure to efficiently handle set of fragments
- Comparison to experiments for validation

