# Movie Captions

• Movie 1 Transient animation of two-dimensional vortex reconnection in Takaoka's straight jet flow (Kida  Takaoka 1991), including closed vortex lines (solid), vorticity vectors, and color contours of the viscous flux vector ($j_z$). Refer to figure 5 for details.

• Movie 2 Transient animation of the Stokes flow driven by a rotationally oscillating sphere. Solid/dashed lines are positive/negative contours of azimuthal circulation, and also correspond to closed vortex lines. Colour shading indicates the vorticity magnitude. Refer to figure 14 for details.

• Movie 3 Transient animation of the flow driven by an impulsively rotated sphere. Dashed lines are contours of azimuthal circulation (the projection of vortex lines on the $r$-$z$ plane), and colour shading indicates the azimuthal vorticity. Refer to figure 16 for details.

• Movie 4 Animation of the flow over a sphere at Reynolds number $Re = 300$. (a) Vortex lines, along with isosurfaces of streamwise vorticity, (b) colour contours of spanwise vorticity, velocity vectors and streamlines in the symmetry plane, and (c) isosurfaces of $\lambda_2$. For more details, refer to figures 27  28.