Cavity flow with a solid disc

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A sketch of the problem and boundary conditions are shown in Figure 1, and the parameter set is displayed in Table 1. In order to show the evolution of the solid disc, the velocity norm on the fluid mesh and the solid mesh are presented in Figure 2 and Figure 3 respectively.

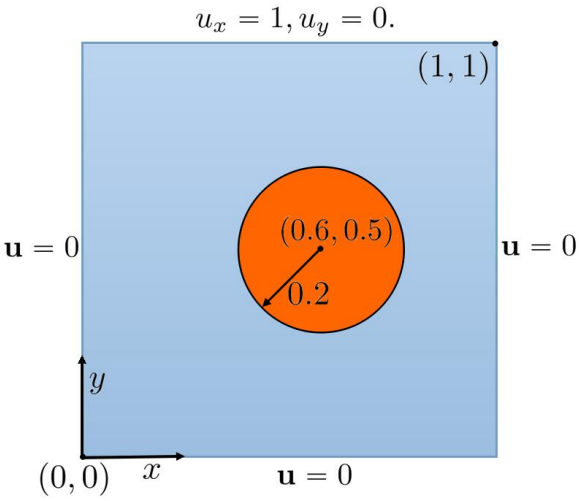


Figure 1: Sketch of the cavity flow with a solid disc.

Parameter sets	ρ^f	ρ^s	μ^f	G	Δt
Parameter 1	1	1	0.01	0.1	1.0×10^{-3}

Table 1: Parameters. G is the material parameter in the incompressible noe-Hookean solid model.

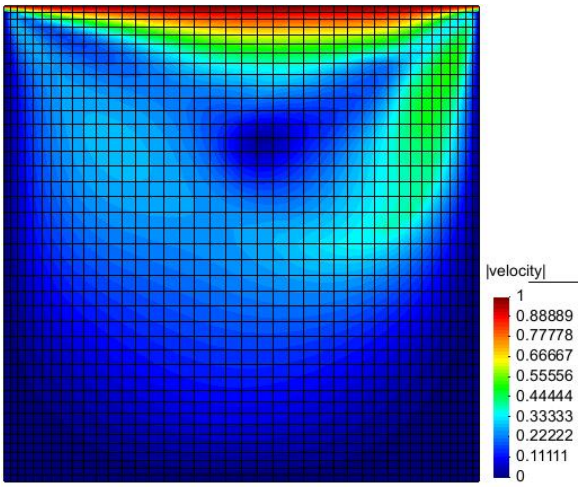
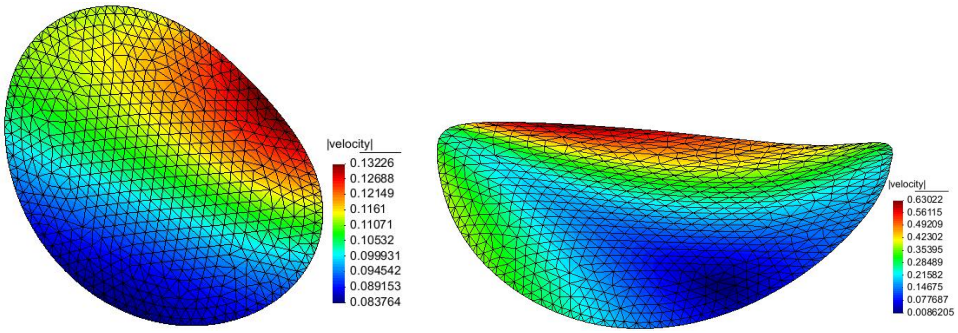
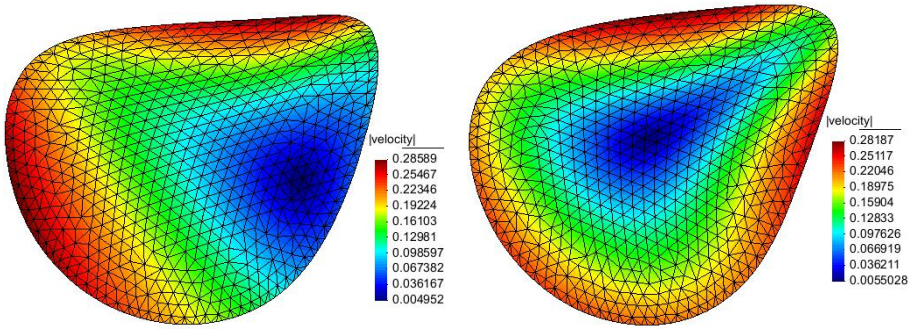


Figure 2: Velocity norm on the fluid mesh at $t = 20$ (fine mesh).



(a) $t = 1$. (b) $t = 4.5$.



(c) $t = 10$. (d) $t = 20$.

Figure 3: Velocity norm on the solid mesh (fine mesh).