Abstract
In this document, we provide additional results to Section 6 of the main paper as supplementary material.

1. Additional Results

1.1. Computation Times

Figure 1: Computation times per time step for an animation similar to the first scene in the main paper and the video file. With a cloth thickness value of $h = 0.005$, the continuous intersection test is not needed, resulting in fast computation times for the two-way coupling.

In Tables 1 and 2 of the main paper, we report computation times for a typical scenario. As complementary information, we provide the evolution of the computation time per simulation step as plots in Figures 1 and 2. The plots show the computation times for the cloth simulation, the fluid simulation, and the two-way coupling for an animation sequence similar to the first example in the main paper, that is also shown in the accompanying video. For both figures, a uniform time step of $\Delta t = 5 \cdot 10^{-4}$ is used.

Figure 1 shows the computation times with a cloth thickness value of $h = 0.005$, for which continuous intersection handling is not necessary. As expected, the computation time for the cloth simulation remains constant and the computation time for the fluid simulation increases linear with the amount of particles in the simulation. As the fluid particles hit the cloth mesh, the computation time for the two-way coupling increases rapidly, but then remains almost constant as soon as the number of particles in contact with the cloth mesh stops increasing.

Figure 2 shows the computation times for the same scene with a cloth thickness of $h = 0.001$. In this case, the continuous intersection test described in Section 3.3 in the main paper is necessary to prevent particles from leaking through the cloth surface. The computation times for the respective simulation systems do not differ from the sequence
Figure 3: Particle view of a scenario where a jet of water hits a horizontally placed piece of cloth that is pinned at its corners. Our impulse-based interaction method prevents leaking even under large cloth deformations.

shown in Figure 1. However, the computation time for the two-way coupling are considerably larger due to the continuous intersection test. Although the computation time also stops increasing at a certain point, there are larger differences in the individual time steps that can be explained by the varying amount of particles that need the continuous intersection test.

1.2. Additional Test Scenario

In addition to the test scenes given in the main paper (e.g., Figures 3 to 5), we provide another example for two-way coupling as shown in Figure 3. In this scenario, a jet of water hits a horizontally oriented piece of fabric. The cloth mesh consist of about 6300 faces and there are up to 145K fluid particles in the scene. We use a uniform time step of $\Delta t = 10^{-4}$ for both the simulation systems and interaction handling. For the two-way coupling, a cloth thickness of $h = 0.005$ is used and the tangential component of the boundary conditions is based on the slip boundary condition. The water gathers on the fabric that deforms under the weight of the fluid particles until the water slops over the boundaries. Even under large cloth deformations, our two-way coupling method prevents particles from leaking through the cloth mesh because the intersection test is processed on the simulation mesh directly.