

## Electronic Supplementary Information (ESI)

### **A sorting strategy for *C. elegans* based on size-dependent motility and electro taxis in a micro-structured channel**

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#### **Supplementary Movie S1:**

The movie shows a moving worm in the micro-channel with micro-bump spacing  $a = 554 \mu\text{m}$  and the ratio of micro-bump diameter to spacing  $d/a = 0.8$ .

#### **Supplementary Movie S2:**

The movie shows a moving worm in the micro-channel with  $a = 554 \mu\text{m}$  and  $d/a = 0.6$ .

#### **Supplementary Movie S3:**

The movie shows a moving worm in the micro-channel with  $a = 554 \mu\text{m}$  and  $d/a = 0.3$ .

#### **Supplementary Movie S4:**

The movie shows a moving worm in the micro-channel with  $a = 346 \mu\text{m}$  and  $d/a = 0.6$ .

#### **Supplementary Movie S5:**

The movie shows a moving worm in the micro-channel with  $a = 485 \mu\text{m}$  and  $d/a = 0.6$ .

#### **Supplementary Movie S6:**

The movie shows a moving worm in the micro-channel with  $a = 624 \mu\text{m}$  and  $d/a = 0.6$ .

#### **Supplementary Movie S7:**

The movie shows an electrotactic movement (electrotaxis) of *C. elegans* in the micro-channel with  $a = 485 \mu\text{m}$  and  $d/a = 0.6$ .

#### **Supplementary Movie S8:**

The movie shows a self-sorting of adult worms in a mixture of different sized worms under the applied electric field of 2 V/cm, demonstrating the feasibility of separating worms using the proposed sorting strategy.