Movie 1. Without electric field ($\Gamma_E = 0$), the spreading processes and the air entrapment of a normal drop impact a flat solid substrate from experiment and simulation, where a bubble is entrapped underneath.

Movie 2. With the electric field ($\Gamma_E = 0.77$), the spreading processes and the air entrapment of a normal drop impact a flat solid substrate from experiment and simulation, which eliminates the formation of compressed air film and air bubble entrapment.

Movie 3. Diagram of the spatial electric potential (Φ), polarization charge density (ρ_e) distribution and vector of electric stresses ($\boldsymbol{f}_{esB}$) at the interface during the drop falling.

Movie 4. Comparison of evolution sequence diagrams of local streamline and pressure field at the bottom of drops with and without an electric field. The white lines in the diagrams are the profile of the air film.

Movie 5. Ellipsoidal drops with different deformation aspect ratios D at the moment of initial contact in various electric fields.

Movie 6. Three representative contact modes with different electric field strengths Γ_E from experiment and simulation.