Confused Bubbles

Apparatus

van de Graaff generator, bubble mix, loop for blowing bubbles

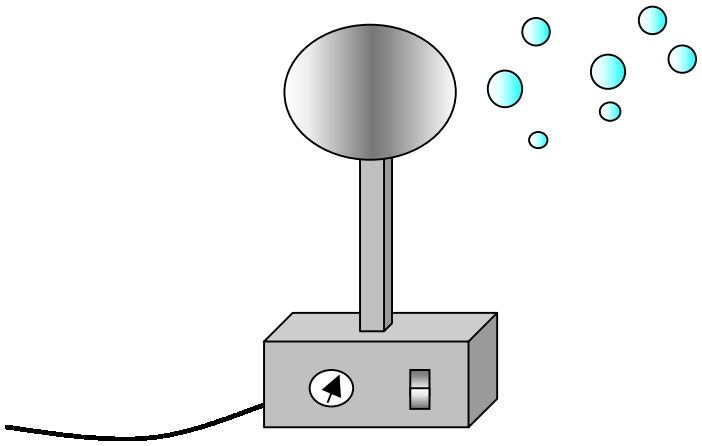
Action

The students blow bubbles towards the generator and watch what they do. Note that students can become easily distracted and spend too much time playing with the bubble mix, so this demonstration needs to be carefully supervised.

The Physics

The bubbles are initially uncharged. As they float near the van de Graaf generator, which is positively charged, there will be charge separation on the bubbles. Negative charges will be attracted towards the generator and move to the closer side of the bubble. Positive charges will be repelled and move to the opposite side. The bubbles will be attracted to the generator and accelerate towards because of this charge separation, even though the bubbles are still neutral. If a stream of bubbles is blown towards the generator other behaviour may be observed. If a bubble breaks in midair it may spray charged particles on to other bubbles. Those behind the burst bubble may be sprayed with positive charge and become net positively charged. These bubbles will then be repelled from the generator.

Note- this demonstration works best when a slow stream of large bubbles is blown towards but slightly to one side of the generator.



Accompanying sheet

Confused Bubbles

Blow some bubbles towards the generator.

Are the bubbles initially charged?
What do the bubbles do?
Why do they behave like this?