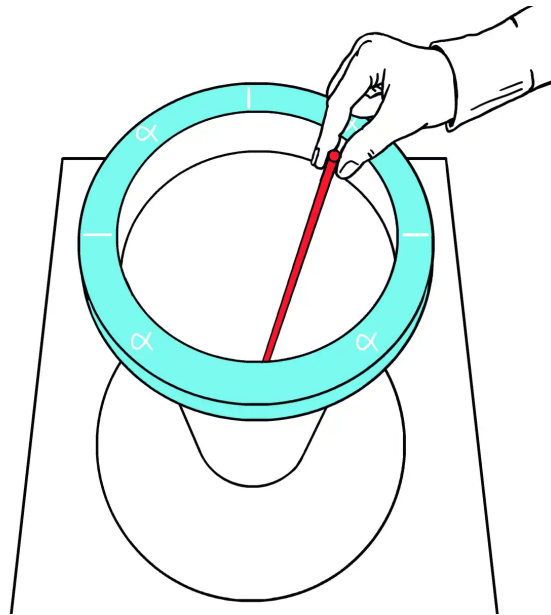


Double spring Lissajous

Which patterns emerge from the vibrating metal rod?



Pull the rod towards one of the markings on the black ring and let it go.

Repeat the procedure at another marking. Do you notice any difference?

Investigate the setup at the foot of the rod.

At the foot of the rod there are two sections of leaf spring arranged at right angles to one another. Depending on the mark you choose to deflect the rod, you bring one or both of the springs into vibration. If it is only one spring, you see a line. If both springs vibrate, the two overlapping vibrations make the end of the rod describe a Lissajous figure. There are lots of different patterns, depending on the deflection of the springs, their frequency and the phase difference of the vibrations.

Lissajous figures are not only beautiful, they also have their uses: In electronics before the digital age, radio and TV technicians could use them on an oscilloscope screen to measure even small differences in high frequencies.