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Stability of Liquid Metal Drops Affected by High-Frequency Magnetic Fields

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The dynamic behavior of sessile liquid metal drops submitted to a high-frequency magnetic field is investigated experimentally. The drops are of Galinstan and placed on a curved glass plate. A ring-like inductor fed by an alternating electrical current generates the magnetic field. The free surface contour of the drop is observed using a high-speed camera system. In the experiment we vary the inductor current and the drop volume while the frequency is fixed. Upon increasing the inductor current static axisymmetric squeezing (0 < I < Ic) and following azimuthal waves (I > Ic) were observed.

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