

Extensive Study of Mercury Drop Oscillations in Non-Autonomous MBH System

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Various shapes (circular, triangular and multilobed stars) of oscillating mercury drop are observed in the non-autonomous or forced MBH (Mercury Beating Heart) system, when a square wave potential is applied between the mercury drop and electrode. The mercury drop is immersed under the acidic solution and kept in a concave vessel. Oscillating shapes of the mercury drop can be stabilised as a function of frequency of the applied potential and volume of the mercury drop. We studied the frequencies of various lobe numbers (oscillations shapes of the mercury drop) of oscillations for different volumes of single mercury drop oscillations and tried to establish a relation between the frequency, lobe number and volume. We coupled two non-autonomous MBH oscillators to see the synchronisation behavior between the oscillations of the drops oscillating with different lobe numbers varying the mercury volume to analyse the relation between the frequency, lobe number and volume .

References

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