7. Magnetic Levitation of Copper Wires (Video 15)

<Explanation>

Three copper wires (density 8.93×10^{3} kg/m^{3}, mass susceptibility -1.081×10^{-9} m^{3}/kg) were put in a solution of gadolinium chloride (0.60 mol/kg), and this set was positioned where $B_z \cdot dB/dz$ becomes maximum (Position: 107mm above the coil center). In this state, the specimen was made to assume magnetic levitation with the use of the magneto-Archimedes levitation method. The temperature was maintained at 10°C.

Video 15 shows the behavior of the specimen when the flux density is changed from 9.90 T to 10.00 T, photographed at intervals of 2 seconds. Levitation of all the copper wires starts at 9.97 T. This is an example of an experiment proving that even a substance like copper, with a large specific gravity, can be levitated if the effect of magneto-Archimedes levitation is utilized.

<Place of execution>

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