

ELECTROCHEMICAL ALTERNATING GRADIENT FORCE MAGNETOMETER

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In times when efforts are being made to develop new magnetic materials based on nanostructures, the techniques for producing them are being developed or refined, and the ones for characterizing them are also under central attention. Under this focus, the electrochemical (EC) deposition techniques to obtain high quality nano-materials are being explored and this, in return, calls for techniques to characterize them properly, preferentially *in situ*, during its formation. It is known that there are very few *in situ* techniques envisaged to study the magnetic properties of materials in EC environment[1], but we succeeded in constructing an Alternating Gradient Force Magnetometer[2] for use in this situation (EC-AGFM)[3] Fig. 1. We will show the possibilities of the experimental setup, its capability for measuring the magnetization as a function of most any of the EC variable parameters including time and mass evolution (Examples in Fig. 2 and Fig. 3)

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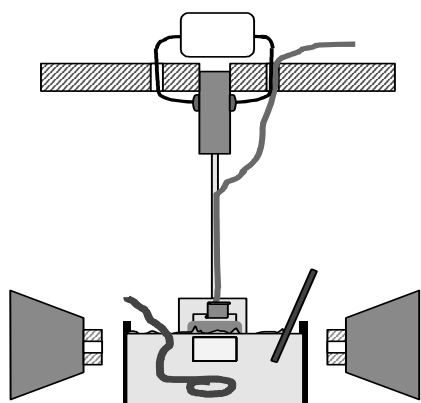


Fig.1 . The EC-AGFM setup

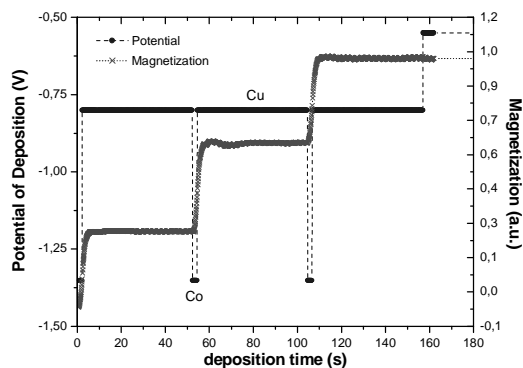


Fig 2 – Deposition x time for a Co/Cu multilayer

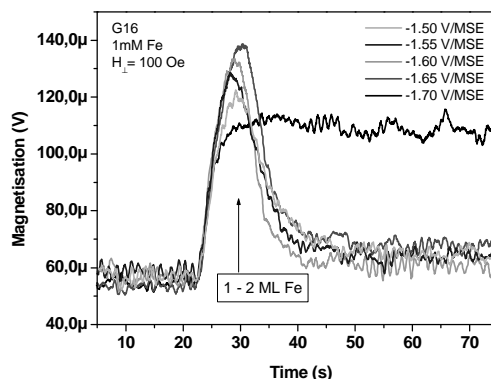


Fig 3 – Deposition x time for a Fe ultra thin film