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► **To cite this version:**

Delphine D. Neff. Preservation of metallic artefacts: understanding the long term degradation processes thanks to multi-scale characterisation. *ARCHAEOLOGY: ANOTHER POINT OF VIEW*, Dec 2016, Cairo, Egypt. cea-02346349

HAL Id: cea-02346349

<https://hal-cea.archives-ouvertes.fr/cea-02346349>

Submitted on 5 Nov 2019

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Preservation of metallic artefacts: understanding the long term degradation processes thanks to multi-scale characterisation

Metallic artefacts undergo corrosion over long periods. This conducts to a loss of readability or shape of the artefacts prejudicial for the preservation of metallic cultural heritage. Stabilisation and protection treatments are conducted to preserve them from destruction. They are based on immersion or coating protocols who can lack of efficiency. That is why the development of scientific studies to understand the physico-chemical processes involved is necessary. This presentation will explained how the NIMBE/LAPA has developed a specific approach to achieve this aim. It will be shown how this scientific researches are conducted in close collaboration with curators. Case studies of artefacts coming from the archaeological terrestrial site of Glinet (16th c, Normandy, France) and the marine site of Les Saintes Maries de la mer (1st BC, Bouches du Rhône, France) will be presented.