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Electrical properties of iron corrosion layers formed in anoxic environments at the nanometer scale

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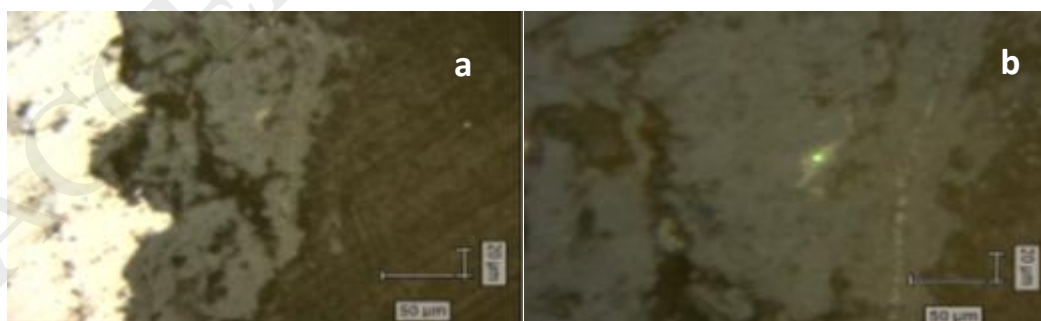
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Highlights

- Determination at the nanometer scale by Conductive-Atomic Force Microscopy (C-AFM) of the electrical properties of the corrosion layers of iron in archaeological artefacts;
- Magnetite and iron sulfides, although embedded in the insulating ferrous carbonates matrix and located at hundred microns from iron metal, present a conductive character. This result suggest that a delocalization of the corrosion cathodic reaction where the electrons from iron metal would transit through a tridimensional network of connected magnetite strips passing through the ferrous carbonate matrix.



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