

A materials science incursion in archaeology, evolutionary biology and, why not?... in materials science itself.

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Highly sophisticated materials science characterization tools can be applied to many scientific fields. We will show a few cases, where the application of those tools becomes strikingly revealing of the underlying microstructures and their contribution to the investigated phenomena.

In archaeology we will show a few EBSD results shading light on pre-Columbian metallurgical techniques to process Pt-Au-Cu alloys, unknown on those times to European blacksmiths.

Regarding biology we present a careful analysis of EBSD characterization results on eggs belonging to avian species comprising various brood parasites-hosts/predator-prey interacting communities.

Finally, we analyze modern results by synchrotron radiation and EBSD characterization combined to understand heterogeneous and anisotropic storage of energy in highly deformed materials. IF iron samples subject to rolling deformation are the model material for presenting the results.