X-Ray Imaging of Cultural Heritage – Bringing to Light our History

Over the past decade there has been a rapid growth in the use of X-ray imaging techniques to study cultural heritage and related fields including art, archaeology and paleontology. Yet with the field still in its infancy there is a lack of communication and multidisciplinary in-depth interaction of the X-ray science and cultural heritage communities. With literally tens of thousands of heritage artefacts yet to be identified and studied the potential for the use of non-destructive X-ray imaging techniques, coupled to adapted data processing approaches, is tremendous.

We propose here to start a systematic program that will bring together young researchers with world experts in the use of synchrotron X-rays, as well as scholars and conservation scientists, to identify, prioritize and carry out future imaging projects. IPANEMA and Stanford are optimally suited for this task. Some of the pioneering work on X-ray fluorescence imaging (e.g. on the Archimedes Palimpsest and Archaeopteryx) has been developed at the Stanford Synchrotron Radiation Lightsource, and IPANEMA is the first interdisciplinary institute focusing on cultural heritage directly based at a large-scale facility, working on synchrotron X-ray and ultra-violet imaging of a large range of artefacts from museum and natural history collections.