The concept of the “Two Cultures” was first introduced by Lord C. P. Snow in the late 1960s, pointing out to the gulf of understanding that exists between the scientists and the non-scientists. Some fifty years later, can we still talk about “Two Cultures”? Scientific research on material culture or technology applied to archaeology has experienced an exponential growth in the last decade with an increasing emphasis to obtain more information from existing artifact collections and a growing demand highlighting the importance of fundamental understanding of archaeological and cultural materials from the macroscopic to the molecular and submicron length scales. In general, archaeological materials are principally highly complex and often heterogeneous systems of inorganic and/or organic origin. For their study, various analytical procedures have been adopted from the natural sciences and engineering using photonics, biochemical and reverse engineering processes. Here, the focus is on applied research at the interface between materials science and archaeology based on a multi-scale and multi-analytical approach that intersects traditional and new non-invasive and non-destructive methods of analysis for the study of the intrinsic properties of archaeological materials (chemistry, composition and microstructure); the behavior of materials’ performance (physical and chemical integrity and attributes); and deterioration processes (physical and chemical reactions) in the context of their archaeological importance, technology and the environment that were found.

Short Biography
Professor Kakoulli is an Associate Professor in the Department of Materials Science and Engineering (MSE) at UCLA with joint appointment in the UCLA/Getty Conservation Program and the Cotsen Institute of Archaeology. She is the co-director of the Molecular and Nano Archaeology Laboratory at the Henry Samueli School of Engineering and Applied Sciences and founder of the archaeomaterials group. She has received her doctorate degree in Archaeological Sciences from the University of Oxford, UK and her Master’s degree in Conservation Science from the University of London. Prior to joining UCLA, professor Kakoulli held academic and research appointments at the University of London, the University of Malta and at Forth Photonics, a research spin-off company in Greece specializing in the research & development of multispectral imaging systems. She has also worked as coordinator and principal instructor of international courses and research at ICCROM, a UNESCO agency in Rome. She operates in the cross-disciplinary field of archaeological sciences, interfacing material science and archaeology for the study of material culture from the macro to the molecular and submicron length scale using approaches at the intersection of traditional and novel non-invasive and non-destructive techniques and portable imaging and spectroscopic technologies. Her primary research focuses on the study of manufacturing processes and provenance of ancient painting materials of the Hellenistic and Greco-Roman period from archaeological sites in the eastern Mediterranean, Mesopotamia and Central Asia with main aim the identification of technological knowledge, technology transfer and intercultural exchange among distant areas of the Hellenistic world. Since her appointment at UCLA she has also conducted research in the field of molecular bioanthropology, studying the diagenetic processes of organic materials based on the burial microenvironments in the area of the Tarapaca Valley in northern Chile and assessing the potential use of human hair and skin and biomarkers for intra and intersite investigations.