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**Compositional Study of the Last Interglacial Paleosol S1 Loess Minerals from Chinese Loess Plateau Using X-ray Diffraction (XRD) and X-ray Absorption Near Edge Structure (XANES)**

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Beamline(s): X26A

This study focuses on the paleosol S1 formed during the last interglacial (approximately from 125,000 to 75,000 years before present) in the Chinese Loess Plateau in an attempt to microscopically examine the mineralogical, chemical compositions, and redox state of iron-bearing phases. These microscopic properties will help us answer essential questions regarding the last interglacial climatic conditions under which the paleosol S1 was developed in the Chinese Loess Plateau. Understanding the S1 soil-forming processes and the processes-related East Asian Monsoon is critical to both improving the soil-related climatic proxies and providing regional information in reconstructing the global interglacial paleoclimate. In this study, we analyzed S1 samples from different geographic and bioclimatic zones in the hope that the geographic differentiation and bioclimatic dependency of the last interglacial paleosol S1 can be traced using synchrotron XRD and XANES at NSLS X26A beamline. At present, we are conducting data analysis and trying to reconstruct the history of redox conditions at the micrometer- to millimeter-length scale.

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