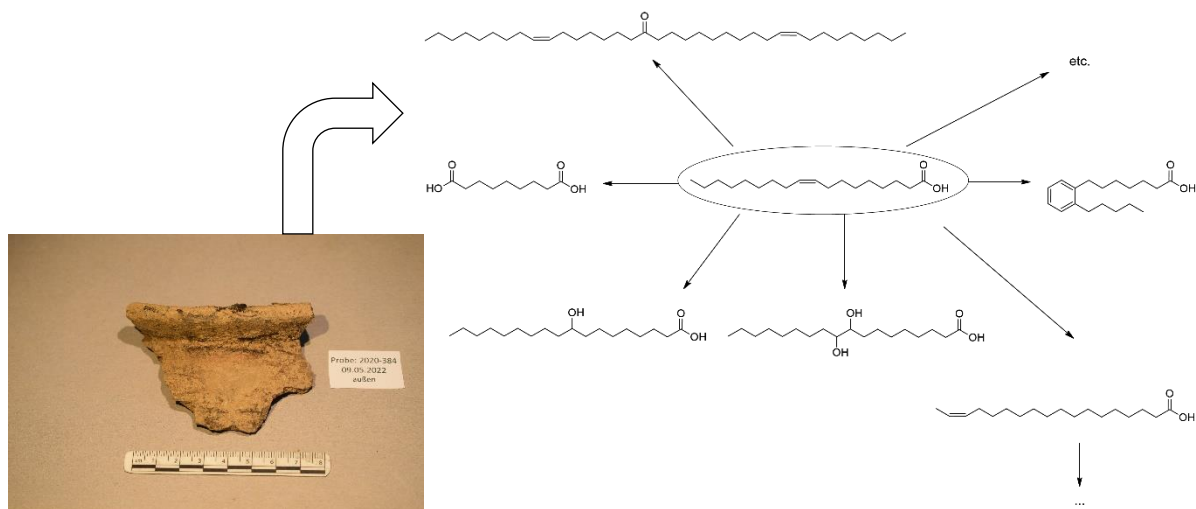


Call for M.Sc. Thesis

(at the AG Soil Geography, Institute of Geography)

Catalytic processes of thermal decomposition of lipids: Investigation of stable decomposition products in archaeological ceramics



The proposed topic belongs to the research area of Archaeological Science, or more specifically Organic Residue Analysis. This involves the extraction and gas chromatographic analysis of lipids from archaeological artifacts – usually ceramics – with the aim of interpreting past diets.

Some detected analytes are not present in foodstuffs, but are considered to be stable products of thermal decomposition of fatty acids and therefore biomarkers of cooking processes. Different functional groups are observed, but in varying proportions.

This leads to the following research question: What role does metal catalysis play in the formation of these compounds? Ceramics are a metal-rich matrix and the element contents vary greatly depending on the raw materials used, which could explain the variety of markers detected. We would like to simulate these processes in the laboratory. Please contact us if interested: gjanzen@uni-mainz.de.

Bondetti, M., Scott, E., Courel, B., Lucquin, A., Shoda, S. & Lundy, J. et al. (2021) Investigating the formation and diagnostic value of ω -(*o*-alkylphenyl)alkanoic acids in ancient pottery. *Archaeometry*, 63(3), 594–608.

Hansel, F.A. & Evershed, R.P. (2009) Formation of dihydroxy acids from *Z*-monounsaturated alkenoic acids and their use as biomarkers for the processing of marine commodities in archaeological pottery vessels. *Tetrahedron Letters*, 50(40), 5562–5564.

Roffet-Salque, M., Dunne, J., Altoft, D.T., Casanova, E., Cramp, L.J.E. & Smyth, J. et al. (2017) From the inside out: Upscaling organic residue analyses of archaeological ceramics. *Journal of Archaeological Science: Reports*, 16, 627–640.