Gangue mineralogy and in-situ Ar/Ar geochronology of carbonate hosted lead zinc deposits: implications for ore deposit classification

THOMAS RIEGLER[1*], SEAN H. MCCLENAGHAN[1], ALISON HALTON[2], SARAH C. SHERLOCK[2]

[1]iCRAG-Department of Geology, Trinty College Dublin, Dublin 2, Ireland (correspondance : rieglert@tcd.ie)

[2]Department of Earth Sciences, The Open University, Walton Hall, Milton Keynes, MK7 6AA

Geochronological applications in the study of mineral deposits are important in resolving the timing of mineralization and can have significant impact on metallogenic models. For epigenetic mineralization occurring in carbonate terranes, such as the Irish-Zn-Pb ore field, methods applied directly to mineralization are critical in resolving temporal variations across the Irish Midlands and the role of syngentic exhalative processes in their formation. Recent work on these carbonate hosted base metal deposits has shown that authigenic potassic silicates co-genetic with Zn-Pb mineralization occur across the Irish Midlands [1]. The high spatial resolution achieved through laser probe Ar-Ar geochronology can help construct a reliable record of the paleofluid flow responsible for the base metal mineralization.

[1] Riegler & McClenaghan (2017) *Ore Geology Reviews*, 88, 140-155.