#0050

# K-Ca dating of muscovite

Barosch, J., Trieloff*, M., Schmitt, A.K., Schwarz, W.H., Ludwig, T., Meyer H.P.
*Institute of Earth Sciences, Heidelberg University, Mario.Trieloff@geow.uni-heidelberg.de

High K/Ca phases such as muscovite are theoretically amenable for K-Ca dating, but require efficient separation of $^{40}K$ from $^{40}Ca$. SIMS methodologies for in-situ K-Ca dating either target doubly charged ion species at intermediate mass resolving power (MRP) = 4.000, or atomic species at high MRP = 30.000 [1]. With the Heidelberg Ion Probe (CAMECA IMS 1280-HR), we are performing a feasibility study on WA1ms (2.61 Ga; [2]) and BMus/2 (328 Ma; [3]) muscovite Ar-Ar reference materials, as well as sericites in 2.01 Ga Vredefort pseudotachylites [4]. Preliminary analyses show that (1) chemical treatment and pre-rastering are beneficial to remove surficial Ca contamination, and (2) primary beam rastering mitigates variability in K/Ca relative sensitivities which are primarily due to variations in $K^{++}$ intensities.

[1] Harrison, M. et al. (2010) Earth&Pl.Sc.Let. 299, 426–433. [2] Jourdan, F. et al. (2014) Geoch.et.Cosm.Act. 141, 113–126. [3] Schwarz & Trieloff (2007) Chem.Geol. 242, 218–231. [4] Trieloff, M. et al. (1994) S.Afr.J.Geol. 97(3), 365–384.

Cite abstract as:
Barosch, J., Trieloff, M., Schmitt, A.K., Schwarz, W.H., et al. (2015) K-Ca dating of muscovite. Paneth Kolloquium, Nördlingen (Germany), abstract URL: http://www.paneth.eu/PanethKolloquium/2015/0050.pdf (abstract #0050).