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U/Pb dating of zircon/baddeleyite of lunar meteorite Jiddat al Harasis 838.

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JaH 838 was found near Al Ghaftain (Al-Wusta/Oman) in 2003 and classified as a lunar mingled regolith breccia in 2014, due to the presence of mare and KREEPy material (see Meteoritic Bulletin Database). Six Zircons (size 5-12µm) and one baddeleyite (10µm) were analysed (some replicate) using a CAMECA 1280-HR SIMS.

Four zircons yield a mean Pb-Pb age value of 4332 ± 5 Ma (2σ , $n=8$), and for the baddeleyite 4339 ± 12 Ma ($n=3$). Two other zircons have a different mean Pb-Pb age of 4409 ± 40 Ma ($n=3$). The U and Th concentrations for the younger group vary between 400-1400ppm and 300-1600ppm, resp., while the older zircons have U and Th contents of <100ppm.

The mean age for the young zircons and the baddeleyite of 4334 ± 3 Ma ($n=11$) is within the range of Pb-Pb ages for (KREEP) lunar material (e.g. [1]), the mean age of 4409 ± 40 Ma is among the oldest lunar zircons (e.g. [2]).

[1] Nemchin et al. (2008) GCA 72, 668-689. [2] Nemchin A. et al. (2009) Nature Geoscience 2, 133-136.

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