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New Ar-Ar ages of enstatite chondrites

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As part of a more comprehensive chronologic study of enstatite chondrites we report whole rock Ar-Ar data of 5 EL-, 3 EH-chondrites and one EH-impact melt. Most chondrites revealed isochrons for low and high temperature extractions with distinct trapped argon compositions that could be used for calculating both isochron and 'plateau' ages for each T-range. For EL-chondrites these ages encompass a range of 4.48 to 4.51 Ga (EL6) (ALH81021, LON94100, Neuschwanstein), 4.49-4.51 Ga (EL5) (TIL91714), 4.49±0.01 Ga (EL3) (MAC88136). Some EH-chondrites show evidence of partial ^{40}Ar*-loss, possibly induced by the 'Qingzhen-reaction' [1]: Sahara 97096 (EH3) indicates a major resetting at about 2-3 Ga, Indarch (EH4) suffered a weak resetting at 4.41-4.43 Ga, in agreement with a previously reported age [2]. EET96135 (EH4/5) showed apparent ages between 4.49 and 4.61 Ga, documenting a particular complex recoil redistribution of ^{39}Ar during neutron irradiation. EH-impact melt LAP02225 yielded an old age of 4.52-4.53 Ga, suggestive of a very early impact history.

[1] El Goresy, A. et al. (1985) Meteoritics 20, 639. [2] Bogard, D.D. et al. (2010) MAPS 45, 723–742.

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