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I-Xe chronology of enstatite chondrites

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We applied the ^{129}I - ^{129}Xe -chronometer for dating of a suite of enstatite chondrites to gather further information about formation, cooling and post-accretional history of the enstatite chondrite parent bodies. We obtained well-defined isochrons that can be used to calculate ages relative to the Shallowater reference. Our results confirm the previously established age dichotomy between EL6 and EH4 and EH5 chondrites, but found much more variations in age within both sub-groups, e.g., EL6 differ in age by ca. 2.5 Ma, and the EH4, 4/5 and 5 chondrites span an internal age range of about 1.5 Ma, with the youngest EH chondrite (Abee, EH4) overlapping in age with the oldest EL6 within analytical uncertainties. These age variations may express differences in cooling history of the sampled parent body region or alternatively might reflect shock-induced disturbance of the I-Xe system. The latter is most likely for Sahara 97096 (EH3) which has an age ~5.6 Ma younger than Abee and ca. ~2.8 Ma younger than EL6 Neuschwanstein, in accordance with the observed much stronger reset of the Ar-Ar chronometer in this meteorite.

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