I-Xe and Pb-Pb ages of Richardton chondrules

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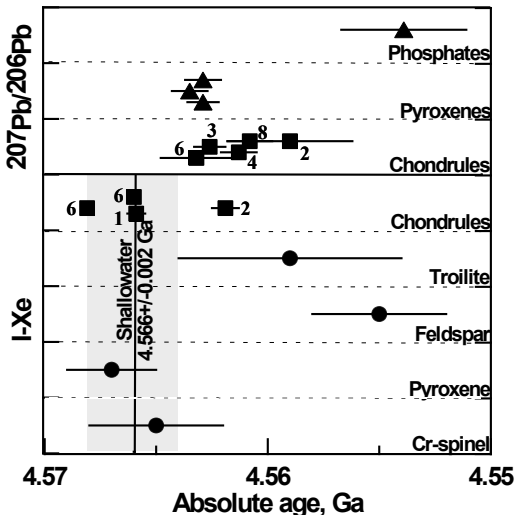
The Richardton (H5) chondrite is characterised by a low degree of chondrule-matrix integration. Although metamor-phism affected the Rb–Sr distribution in Richardton, it had negligible effect on the major element chemistry or the texture of its chondrules (Evensen et al., 1979). I–Xe studies of Richardton may, therefore, provide insight into earliest stages of metamorphism on the Richardton parent body.

Each of the eight Richardton chondrules analysed was divided into few fragments, one mounted in epoxy and polished for mineralogical studies. Fragments from 4 chondrules were irradiated for I–Xe analysis; other fragments were used for Pb–Pb studies.



New I–Xe and Pb–Pb data are shown in the figure as squares, previous I–Xe ages of mineral phases (Pravdivtseva et al., 1998) as circles and Pb–Pb as triangles. Chondrules are identified by number. Two chondrules (#2, #6) have been successfully dated by both chronometers. Absolute I–Xe and Pb–Pb ages in Richardton chondrules are generally in good agreement (to within the uncertainty of the Acapulco normalization). However, the systematic difference is suggestive that absolute I–Xe ages *may* be 2–3 Ma too old. Our attempt to refine the absolute I–Xe age normalization by Pb–Pb dating of Shallowater (internal I–Xe standard) failed due to its extremely low uranium content (<2ppb). Supported by NASA grant NAG5-9442.

References

Evensen N. M., Carter S. R., Hamilton P. J., O'Nions R. K. Ridley W. I. (1979) *EPSL,* **42**, 223-236.

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