

New frontier of chronology of the Solar System based on in-situ U-Pb dating

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Collisions between planetesimals and/or asteroids in the Solar System are frequent, causing fragmentation of clast and disturbing the "clock" of radiometric age. However, careful assessment of two decay series of U (both ²³⁸U and ²³⁵U) could potentially reveal not only crystallization age but also alteration age. Here, we report the U-Pb systematics of multiple-processed ordinary chondrites that suffered metamorphism, collision, fragmentation, mixing, and reaccretion, using ion microprobes.

Keywords: dating, Solar System, U-Pb age, in-situ analysis, meteorite, isotope