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TL OF METEORITES: SHEDDING LIGHT ON THE COSMOS

The long and enigmatic history of meteorites affords several opportunities for the meaningful application of thermoluminescence. Natural TL levels provide an indication of the time which has elapsed since fall to earth, and they help identify meteorites which have recently been reheated, e.g. by close solar passage or shock-heating. Its measurement is therefore included, with Al-26 counting and petrographic descriptions, in the routine preliminary studies made on the many hundreds of meteorites returned from the Antarctic. Induced TL properties of meteorites and meteorite components, and a series of shock and annealing experiments, have provided a new and often quantitative means of exploring metamorphic, shock and brecciation histories. The technique has proved of value in studying a variety of meteorite types, including especially primitive meteorites and meteorites from the planet Mars.