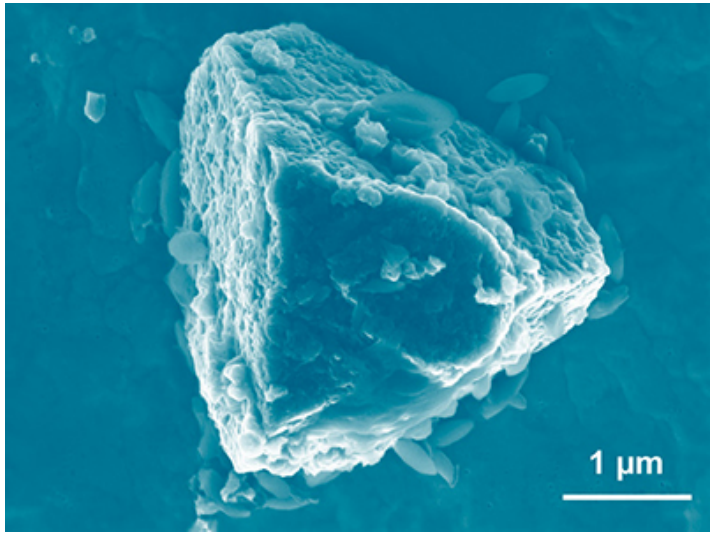
Rare-isotope decay links tiny grains to stellar explosions

A newly discovered state of the ^{31}S nucleus could help to explain the puzzling isotope ratios found in tiny grains of silicon carbide that are found in some meteorites. The discovery provides important information about how elements such as silicon are created in stellar explosions called novae.



This grain of stardust is abundant in silicon-30.

The new state was discovered by carefully measuring the β-decay of the rare-isotope ^{31}Cl. This state could provide a strong resonance in the ^{30}P(p,γ)^{31}S reaction and may therefore explain why less ^{30}Si is observed than expected in dust grains from novae.

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