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Possible supernova and nova origins for presolar silicon carbide grains of type AB

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Type “AB” presolar SiC grains are characterized by $^{12}\text{C}/^{13}\text{C} < 10$. Their stellar sources are not well-understood, and J-type carbon stars have been proposed as possible candidates [1]. We carried out Mg-Al (17 grains), S (34 grains) and Ca-Ti (10 grains) isotope analyses for 34 AB grains in order to clarify their origins. Their ^{26}Al abundances are comparable to the previous reports (e.g., [1]). Two AB grains show large ^{33}S excesses of up to $\sim 900\%$ along with $\sim$ normal ^{34}S abundances, while 8 grains exhibit depletions of ^{33}S and/or ^{34}S (down to -600% and -300% for ^{33}S and ^{34}S) relative to solar abundances. No grains have ^{44}Ca excesses due to ^{44}Ti decay beyond the 2σ errors. The grains with $^{33,34}\text{S}$ deficits possibly originated from Type II supernovae (SNeII) [2]. The stellar sources for the grains showing ^{33}S enrichments are less clear, but it might be SNeII or novae [3]. We will perform N and Mg-Al isotope analyses for further information about the stellar origins of the S-anomalous grains.

[1] Amari, S. et al. (2001) ApJ 559, 463-483. [2] Hoppe, P. et al. (2012) ApJL 745, L26. [3] José, J. & Hernanz, M. (1998) ApJ 494, 680-690.

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