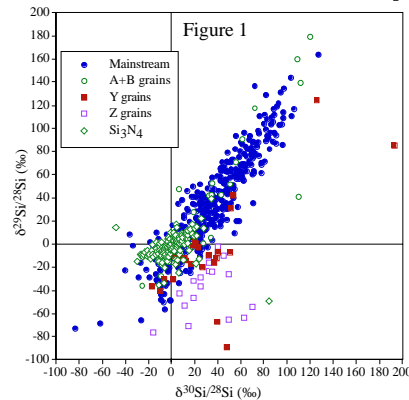


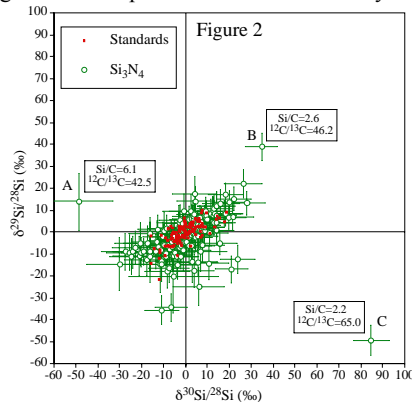
**SI ISOTOPIC MEASUREMENTS OF SMALL SiC AND Si<sub>3</sub>N<sub>4</sub> GRAINS FROM THE INDARCH (EH4) METEORITE.** E. Zinner<sup>1</sup>, S. Amari<sup>1</sup>, R. Guinness<sup>1</sup> and C. Jennings<sup>2</sup>. <sup>1</sup>Laboratory for Space Sciences and the Physics Department, <sup>2</sup>Earth and Planetary Science Department, Washington University, St. Louis, MO 63130, USA. (ekz@wuphys.wustl.edu)

Last year we have reported NanoSIMS C and N isotopic measurements on small SiC grains, among them 182 grains from the Indarch (EH4) SiC-rich separate IH6 (diameter 0.25–0.65 μm) [1]. Here we report C and Si isotopic analyses on 585 grains from IH6. Measurements were made in multi-detection mode by counting C<sup>-</sup> and Si<sup>-</sup> ions in five electron multipliers.

Acid residues from enstatite chondrites contain silicon nitride [e.g., 1, 2, 3]. Among the analyzed IH6 grains we identified 442 SiC and 143 Si<sub>3</sub>N<sub>4</sub> grains. Si isotopic ratios of SiC grains are shown in Fig. 1. We found 361 mainstream grains (81.7%), 23 A+B grains (5.2%), 3 X grains (0.7%), 27 Y grains (6.1%), and 28 Z grains (6.3%). While the abundances of A+B and X grains are very similar to those obtained for >2 μm grains [4, 5], the abundances of Y and Z grains are much higher [6], in agreement with previous observations on SiC from the Murchison and Acfer 094 meteorites [7, 8].



Previous ion microprobe analyses of single Si<sub>3</sub>N<sub>4</sub> grains from Qingzhen and Indarch [1, 2] yielded isotopic anomalies in C and N. While Alexander *et al.* [2] believed that these were due to attached SiC grains, Amari *et al.* [1] considered the possibility that some were of presolar origin. Among the Si<sub>3</sub>N<sub>4</sub> grains of this study we found one of type X [3, 4, 9]. Most of the other grains cluster around normal Si isotopic compositions (Fig. 2). Although deviations from normal are larger than those of terrestrial Si<sub>3</sub>N<sub>4</sub> standards, they might be due to attached SiC grains. This is less likely for grains A and C although such an explanation cannot be strictly excluded.



**References:** [1] Amari S. *et al.* (2002) *LPS*, XXXIII, #1205. [2] Alexander C. M., O'D. *et al.* (1994) *Meteoritics* 29, 79. [3] Besmehn A. and Hoppe P. (2001) *LPS*, XXXII, #1188. [4] Nittler L. R. *et al.* (1995) *ApJ*, 453, L25. [5] Amari S. *et al.* (2001) *ApJ*, 559, 463. [6] Amari S. *et al.* (2001) *ApJ*, 546, 248. [7] Hoppe P. *et al.* (1996) *GCA*, 60, 883. [8] Gao X. and Nittler L. R. (1997) *LPS*, XXVIII, 393. [9] Lin Y. *et al.* (2002) *ApJ*, 575, 257.