NO EVIDENCE FOR PRIMORDIAL NOBLE GASES IN CAIs. N. Vogel1,2*, H. Baur1, I. Leya1, and R. Wieler1 1Institute for Isotope Geology and Mineral Resources, ETH Zürich, CH-8092 Zürich; 2Berkeley Geochronology Center, 2455 Ridge Road, Berkeley, CA 94709 (nvogel@bgc.org*).

Introduction: Several studies [1-3] have reported the presence of, e.g., Ne-E, Ne-HL (Ne-A), or solar Ar in CAIs, which would provide important constraints on CAI formation. To re-examine these findings, we measured Ne and Ar in Allende (A) and Efremovka (E) CAIs. E CAIs contain less secondary phases than those of A [4], thus, alteration should be minor.

Experimental: Samples from 5 fluffy and 4 compact A CAIs and 1 fluffy E CAI were separated under a binocular microscope. At the conference, data from Axtell will also be presented. Gases were extracted by IR-laser (CW-mode). Blanks of ≤2×10⁻¹³ cm³ STP for 20Ne and 36Ar contributed ≤9% to measured signals.

Results: Unlike the matrix, all CAIs in the figure fall on a line between normal chondritic cosmogenic Ne and ~ the origin, where also Ne-E (essentially pure ²²Ne) plots. However, rather than by admixture of Ne-E, the data are more straightforwardly explained by fractions of cosmogenic Ne having been produced from Na and Al. Calculated cosmogenic Ne compositions in Na- and Al-rich minerals in CAIs [5] indeed plot on the same line as the CAIs. Since the shift of ²¹Ne/²²Ne to lower ratios is mainly due to cosmogenic Ne production in secondary Na-rich phases, E CAIs should plot close to chondritic cosmogenic ²¹Ne/²²Ne, which is indeed the case. No CAI shows enhanced ²⁰Ne/²²Ne, which would indicate, e.g., Ne-HL.

Conclusion: The studied CAIs contain no primordial Ne-HL. Although we cannot conclusively exclude Ne-E or primordial Ar, the Ne data are straightforwardly explained by cosmogenic Ne production from Na- and Al-rich minerals. The enhanced ³⁶Ar/³⁸Ar of fluffy A CAIs are best explained by cosmogenic production of Ar from Cl particularly abundant in altered fluffy A CAIs.