Oxygen-deficient solar power meteorite

Do HED meteorites have oxygen isotopes anomalies?
These latter HED meteorites therefore show oxygen isotopes anomalies. Among the 20 HEDs with anomalous oxygen isotopes,the oxygen isotope compositions of 15 of them cannot be accounted for by terrestrial weathering or the addition of exogenous material.

Which igneous rocks have high-precision oxygen isotope data for HED meteorites?
Since there are currently no high-precision oxygen isotope data for single-minerals of HED meteorites, we use the oxygen isotopic data of olivine, plagioclase, and quartz from terrestrial igneous rocks for analogy (Ahn et al., 2012; Fiebig and Hoefs, 2002; Kusakabe and Matsuhisa, 2008).

Do all HED meteorites have a common parent body?
Wiechert et al. (2004) measured the oxygen isotopes of 34 HED meteorites and argued that all HEDs have a common parent body(Vesta),and the anomalous oxygen isotopic compositions of 4 HEDs are the result of some primary isotopic heterogeneity retained by Vesta.

What causes oxygen isotope anomalies?
1) Oxygen isotope anomalies are the result of factors external to their igneous formation,for example terrestrial weathering or brecciation on their parent body.

Are HED meteorites a product of low degree partial melting?
If the HED meteorites are indeed the products of low degree partial meltingof the same parent body,they should have a D 17 O value fluctuation range similar to that of the ureilites,which have a wide spread of D 17 O values of 2.08? (Greenwood et al.,2017).

What is the theoretical basis for HED meteorites?
It is worth noting that the theoretical basis for this inference by Wiechert et al. (2004) is the Ghosh and McSween (1998) model,which assumes that HED meteorites origin from a low-degree partial melt.

Oxygen has three isotopes with different masses: oxygen-16 (16O), oxygen-17 (17O) and oxygen-18 (18O). On Earth and on the Moon, these three oxygen isotopes distribute in the same proportions, but on all other objects in the solar ...

Meteorites and their components have anomalous oxygen isotopic compositions characterized by large variations in 18 O/ 16 O and 17 O/ 16 O ratios. On the basis of recent observations of ...

The photocatalytic activities of TiO2 have been limited mainly to absorbing in the ultraviolet spectrum which accounts for only 5% of solar radiation. High energy band gap and ...

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In contrast to many other CM chondrites, samples of the Winchcombe meteorite contain almost pure trapped fractionated solar wind-derived noble gases, suggesting its origin from the near-surface regolith ...

Herein, we report a facile, ecofriendly, one-step synthesis process to construct petal-like oxygen-deficient NiAl-LDH nanosheets for hybrid super-capacitors (HSCs) and urea ...

Within 470 Myr ago sediments at a limestone quarry in Sweden, Schmitz et al. have found and identified a new type of meteorite based on chromium and oxygen isotopes sourced from a previously ...

The OM aggregate has high D/H and 15N/14N ratios (dD = 2,370 ± 74? and d15N = 696 ± 100?), suggesting that it originated in a very cold environment such as the interstellar medium or outer ...

In order to report oxygen isotope data of meteorite samples on a three oxygen isotope plot, we have also produced a terrestrial fractionation line (TFL) based on 22 different minerals including silicate minerals (e.g., plag, ol, ...

Ultraviolet laser microprobe analyses of a calcium-aluminum-rich inclusion (CAI) from the Allende meteorite suggest that a line with a slope of exactly 1.00 on a plot of d 17 O against d 18 O represents the ...

Here, we present oxygen-deficient black ZrO 2-x as a new material for sunlight absorption with a low band gap around ~1.5 eV, via a controlled magnesiothermic reduction in 5% H 2 /Ar from ...

High-precision oxygen isotope analyses for the two major groups of stony-iron meteorites (main-group pallasites and mesosiderites) demonstrate that each group is from a distinct asteroidal source. ...

Oxygen is the dominant element in our planetary system. It is therefore remarkable that it shows substantial isotopic diversity both in mass-dependent fractionation, because it is a light element ...