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Large scale transport and oxygen isotopic exchange between condensates and ambient gas

Hiroko Nagahara and Kazuhito Ozawa
University of Tokyo, Department of Earth and Planetary Science, Tokyo, Japan (hiroko@eps.s.u-tokyo.ac.jp)

In order to understand material transport and oxygen isotopic characteristics recorded in meteorites in a protoplanetary disk, we have developed a model that describes mixing of two components, one transporting outward from the inner edge and one transporting inward by accretion of a protoplanetary disk with different oxygen isotopic compositions. “Planetary” oxygen isotopes (δ18O=0) were achieved through the evolution of the disk due to larger inward and outward transportation of materials and ice at the early stage and smaller transportation at the later stage.