

# Recosideration of Hf-W chronometry: Implications for a Moon-forming giant impact

# Takanori Sasaki[1]; Yutaka Abe[2]

[1] Earth and Planetary Sci., Univ Tokyo; [2] Earth Planetary Sci., Univ. Tokyo

<http://www-sys.eps.s.u-tokyo.ac.jp/~takanori/>

The Moon may have formed from debris created by a giant impactor that hit the Earth with a glancing blow, after terrestrial core formation. The decay of now extinct  $^{182}\text{Hf}$  (half-life, 9Myr) to  $^{182}\text{W}$  is an ideal chronometer for tracing this process, because Hf is retained in the silicate mantle while W is largely partitioned into the core during core segregation. We considered the effect of partial resetting on Hf-W chronometry, and showed this chronometer cannot determine the age of melt-silicate separation precisely and achieving large resetting ratio is not so easy by a giant impact. On the other hand, we showed possibility to constrain the required resetting ratio by giant impacts. In this presentation, we will present some implications for a Moon-forming giant impact from data of Lunar meteorites, and formation of Mars from data of SNC meteorites. (For details of mechanisms imperfect equilibration of Hf-W system refer to our other presentation 'Imperfect equilibration of Hf-W system by giant impacts: mechanisms and consequences' at 'Early Earth' session.)