Accretion and Ablation During Stellar Evolution: How Old is Mercury?

Jeffrey J. Wolynski
Jeffrey.wolynski@yahoo.com
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Rockledge, FL 32955

Abstract: As stars accrete material in their interiors to form "planets", they ablate their thick atmospheres. This means accretion and ablation happen simultaneously during stellar evolution. Much more material is ablated than accreted at first during the process of planet formation, though eventually all material is ablated over time. Explanation is provided.

The amount of mass lost during stellar evolution is much greater than the amount of mass gained during interior accretion. So for instance, if the Sun makes an Earth sized object in its interior, then it will have formed 1/330,000th the mass of itself during the process of planet formation. This means 299,999 Earth masses were lost for the Sun to make an Earth sized object. This is huge. What this means is that .0003% of the Sun's original mass will remain given it makes an Earth sized planet long into its future. This is a small fraction though, as that is just to make the solid object out of material that is stubbornly removed. The vast majority of young stars like the Sun are composed of hydrogen, helium and oxygen, elements easily removed as they are volatile (easy to vaporize). What is more pronounced is the ablation after the fact. The ablation after the star has reached its most solid, Earth-like, Mercury-like phases is much, much greater percentage wise, and takes a vastly longer period of time.

Given Mercury's inner core is about the same size as Earth's inner core, most likely Mercury is about 32.75 trillion years old, due to the ablation effects taking extraordinarily long periods of time, given their inner cores are the same size, and the fact that one has 1/7,278 times the total axial angular momentum as the other.

MERCURY!

$I = \frac{2}{5} M r^2$ # 7/27/19
—JJW

$$I = \frac{2 \cdot (3.285 \times 10^{23} kg) \cdot (2.4397 \times 10^6)^2 m}{5}$$

$$I = \frac{(6.57 \times 10^{23} kg) \cdot (5.95 \times 10^{12}) m}{5}$$

$$I = \frac{39.1055 \times 10^{35} kg \cdot m}{5}$$

$$I = 7.8211 \times 10^{35} kg \cdot m$$

$$W = \frac{2\pi rad}{58(24)(60)(60) + 15(60)(60) + 30(60) \text{ seconds}}$$

$$W = \frac{6.2832}{5.01 \times 10^6 + 5.4 \times 10^4 + 1.8 \times 10^3 \text{ seconds}}$$

$$W = \frac{6.2832 \text{ rad}}{5.06 \times 10^6 \text{ seconds}} \cdot \frac{7.8211 \times 10^{35} kg \cdot m}{1}$$

$$I \cdot W = \frac{6.2832 \text{ rad}}{5.06 \text{ sec}} \cdot 7.8211 \times 10^{29} kg \cdot m$$

$$L = 1.242 \text{ rad/sec} \cdot 7.8211 \times 10^{29} kg \cdot m$$

$$L = 9.712 \times 10^{29} kg \cdot m \cdot s^{-1}$$

7/27/19

Mercury vs. Earth

$9.712 \times 10^{29} kg \cdot m \cdot s^{-1}$ $\quad$ $7.0687 \times 10^{33} kg \cdot m^2 \cdot s^{-1}$

(total axial angular momentum)

- □ since both have same inner core sizes
- □ Ablation effects are extremely slow to wear down mercury's mantle material
- □ Mercury is known to be a dead star

$$\frac{9.712 \times 10^{29} kg \cdot m \cdot s^{-1}}{7.0687 \times 10^{33} kg \cdot m^2 \cdot s^{-1}} = \frac{9.712 \; kg \cdot m \cdot s^{-1}}{7.0687 \times 10^{4} kg \cdot m^2 \cdot s^{-1}} =$$

$$\frac{9.712}{70{,}687} \text{ inverse} \rightarrow \frac{70{,}687}{9.712} = \underline{7{,}278}$$

This could mean, Mercury is 7,278 times older than the Earth! Holy moly! If the Earth is ~4.5 billion years old, then Mercury is <u>32.75</u> trillion years old.

So you are not only observing a dead star when you see Mercury, you are observing a dead star that has been wandering the universe (as a dead star) for the vast majority of its existence. It is a fossil star. Similar to the dinosaur fossils we find in the Earth, the dinosaurs have been dead for hundreds of millions of years, yet when they were alive probably had life spans similar to us. A single dinosaur has been dead for many magnitudes of time longer than that single dinosaur has been alive, the same goes for Mercury. Let us see astronomers figure this one out on their own. Ain't happening. They still think Mercury is the left over remains of the Sun's formation, boy are they so totally wrong. They are looking at not only a dead star, but a stellar fossil, there's no way that is left over remains of the Sun forming, no way!