Defining the Chemical Equilibrium of Dead Stars in Stellar Metamorphosis

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Abstract: It is explained in stellar metamorphosis that in order for a star to be classified as dead, it absolutely must be in static chemical equilibrium. Perfect chemical equilibrium is impossible though, as interactions with asteroids and hotter stars can change the chemistry of the dead star.

Stars with mostly dynamic equilibrium can host life, this is of course far into its evolutionary sequence. As well, all stars that are alive have either dynamic chemical equilibrium or can be in a long term non-equilibrium state as they evolve. This means:

1. Dead stars are in static chemical equilibrium as all dynamic equilibrium events have ceased (this includes all biological events, such as life.)

2. All the chemically and physically reversible reactions have ceased to take place on the dead star.

3. Any chemically or physically reversible or irreversible reactions can only take place, due to outside influences such as impacts, the radiation or wind from another host, or internal heated due to gravitational effects, etc.

4. Internal radiation due to radioactive material can still occur, but is extremely limited in effects, as all matter is somewhat radioactive, due to the presence of unstable or partially stable isotopes. This means that for a star to be classified as dead, it is not required to have completely lost all radioactive components. The half-lives of extremely stable isotopes would reach far beyond the scope of defining a star as dead/alive, similar to a human being classified as “alive” regardless if he or she still has radioactive carbon-14 long after they have died.

If a star has processes such as rain, wind or lava then it is not dead. Objects like Mercury and the Moon which do not have rain, wind or lava can be classified as dead. If they scoot closer to a hotter host and lava starts forming on the surface, then it can still be dead, as it is being heated by an outside body.