

# Determining the Ages of Stars Mathematically Using Luminosity

Jeffrey J. Wolynski  
Jeffrey.wolynski@yahoo.com  
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Cocoa, FL 32922

*Abstract: In stellar metamorphosis, stars exhibit exponential decay. A simple mathematical relationship based off luminosity as compared to the Sun is given so that stars can have their ages determined. This paper is up for continued revision, as it only serves as a starting point to develop stellar metamorphosis in a mathematical sense.*

For this example we will begin with the Sun being 65 million years old and having the bolometric luminosity of "1". Epsilon Eridani has  $\sim 1/3$  the luminosity of the Sun, and is 98 million years old. Therefore, for every 33 million years, a star's bolometric luminosity drops off by  $1/3$ . This means that a star which a bolometric luminosity of  $1/729^{\text{th}}$  the Sun, it will be about 263 million years old. Therefore, all the stars in the sky that have strong bolometric spectrums all the way into the visible light spectrum are probably younger than 263 million years. This means all the stars a person sees in the night sky are very young, not older than 263 million years. As a star with the luminosity of  $1/729$  the Sun would have  $1/60^{\text{th}}$  the luminosity of a red dwarf star, thus meaning near the brown dwarf stages of stellar evolution according to stellar metamorphosis. Brown dwarfs do not have strong visible spectrums, so they can be considered at least 263 million years in age, meaning there is no such thing as a "very young brown dwarf". All brown dwarfs have evolved considerably and have ceased shining strongly in the visible spectrum.

So that the reader can use this paper effectively a few points should be brought up to see through establishment's more than likely false interpretations and false assumptions, if any establishment paper on arxiv has:

1. any star with a strong visible spectrum older than 263 million years, it is probably wrong.
2. Brown dwarfs younger than 263 million years, it is probably wrong.
3. any age determination that utilizes an event that cannot be measured, such as big bang, or dark matter or anything to do with string theory or extra dimensions, it is probably wrong
4. any age determination that does not account for the exponential decay of stars as they cool into what are called "planets", it is probably wrong.
5. any paper that has brown dwarfs as "failed stars", it is probably wrong
6. any paper that separates the concept of "planet/exoplanet" from "star" conceptually is probably wrong
7. any paper that accepts a brown dwarf as being related to its host, is probably wrong