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Stellar Archeology: What White Dwarf Stars Tell Us about the Age and Star-Formation History of the Galaxy[1] TERRY OSWALT, Florida Institute of Technology — White dwarf stars are many thousands of times more dense than matter which can be studied in terrestrial laboratories. Embers of dying stars which no longer are capable of generating energy, they are merely cooling slowly to invisibility. Thus, the oldest white dwarfs are the remains of the first generation of stars in the solar neighborhood. The intense gravitational fields of white dwarfs distort the light they emit. This effect, called gravitational redshift because the emitted light is reddened, is one of the classical proofs of Einstein's theory of relativity. White dwarf stars found in wide binary pairs with a hydrogen-burning solar-type companion also provide a unique way to quantify physical properties such as mass, population membership, stellar activity, and chemical abundance that are difficult to obtain for single stars. This talk will discuss the life cycle of stars and how the end product of stellar evolution, white dwarf stars, provides powerful "archeological" constraints on the age and star formation history of the Galaxy.

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