# This Week's Citation Classic

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**Paczynski B.** Evolution of single stars. I. Stellar evolution from main sequence to white dwarf or carbon ignition. *Acta Astronomica* **20:**4758, 1970.
[Joint Institute for Laboratory Astrophysics, Univ. Colorado, Boulder, CO]



**Model calculations were made for the evolution of stars of various masses. Models above eight solar masses ignited carbon nonviolently. Intermediate mass stars ignited carbon explosively. Models below four solar masses could not ignite carbon; they left white dwarfs as final products of their evolution. [The *SCI*® indicates that this paper has been cited over 200 times since 1970.]**



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"During the academic year 19681969 I was fortunate to be a visiting fellow at the Joint Institute for Laboratory Astrophysics (JILA) in Boulder, Colorado. With no administrative or teaching duties I had all my time available for research. Modelling stellar evolution with a digital computer was one of the most attractive astrophysical problems at that time. Given so much time I decided to write a set of fast, easy to use, and as general as possible computer programs which could be applied as a convenient tool for studies of stellar evolution. By the end of my stay at JILA the programs were debugged and could be handled even by inexperienced users. After my return to Warsaw I spent about two months writing a technical description of the programs, which was a terribly dull job. Ursula Palmer, who was a computer programmer at JILA, agreed to send a copy of the program with the description to all astrophysicists who would like to use it. I believe she mailed a few dozen copies. The codes became so popular that at one of the meetings of the American Astronomical Society there was an informal session *of* the 'Paczynski's code users,' exchanging their experiences.

"A few years ago Palmer tragically died in a car accident, and it looked like the distribution of the code died with her. However, Philip J. Flower, one of the users who is now at Clemson University, became the new distributor. He spent over a year in Warsaw as a graduate student, and he was recently at JILA as a postdoctoral fellow. The code is again available. I believe it is so popular because it is the only code of this type for which documentation is available.

"During my stay at JILA a decade ago, I produced a lot of new results with my code. They were published in a series of papers over the next two years. It was clear from the beginning that it would take a lot of time to prepare all of those papers. Therefore, I decided to write a short note, which would be a summary of all the important results, to be described in detail later. I submitted the paper to the *Astrophysical Journal* (Letters), the leading journal in my field. Unfortunately, the referee thought the note was too long for the Letters section, but too condensed for the main journal. The editor rejected the paper. By that time I was in the middle of documenting my code, with a long series of publications waiting to be written. I simply did not have time to change my unsuccessful note. I submitted it as the first paper of the series to *Acta Astronomica,* with not a single change. It was accepted.

"I think the paper was cited frequently not only because it contained a lot of new results, but also because it was very easy to read. I think it was just the right length."