



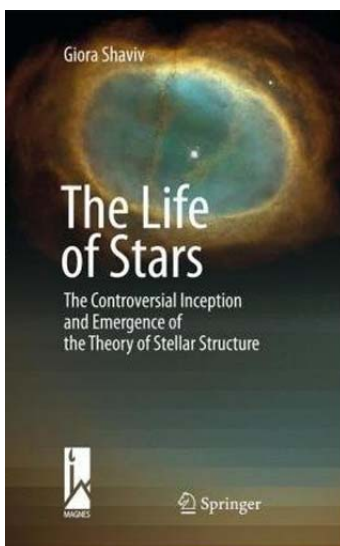
## The life of stars – the controversial inception and emergence of the theory of stellar structure

by Giora Shaviv

Springer, 2009. ISBN 978-3-642-02087-2. pp 504, £89.99 (hbk).

I thoroughly enjoyed this book. Some of the nuclear physics was a little hard going but it is not especially difficult. But what made it especially enjoyable for me were the tiny snippets or anecdotes which appear quite liberally throughout the book, sometimes in the main text but more usually as a footnote.

For example, as early as page 30 in a long footnote the author mentions the Michelson–Morley experiment (which was aimed at trying to discover the ether) but goes on to add that Michelson was awarded the Nobel Prize for Physics and so became the first American to achieve this. Furthermore, the author adds that neither Michelson nor Morley considered the experiment disproved the ether theory, and that



Michelson made no mention of the experiment in his Nobel address!

The author, Giora Shaviv, is a leading theoretical astrophysicist. Recently the *Physical Review Letters* selected one of his papers as among the best 20 published in the past 50 years in that journal. He initiated the Asher Space Research Institute at the Technion (the Israel Institute of Technology) and has served as President of the Israeli Physical Society.

The writing style is easy and the book is exceedingly well referenced. There are also extremely few typographical errors – I only noted four in over 500 pages. And even the omission of the first part of the diagram in

Figure 7.8 is not too serious.

The book is split into nine main sections: 1– The controversy about the age of the Earth, which I found particularly fascinat-

ing; just how old is the Earth and so how old are the Sun and other stars? 2– What stellar classification tells us, which introduces the Hertzsprung–Russell diagram; 3– The dawn of a new era, where the atomic quantum theory first gains prominence; 4– Towards a complete theory of stellar structure, where we learn that at one time it was thought dwarf stars were liquid and only the giants were gaseous; 5– From chemistry to dying stars; why are there so many elements? 6– The solution to the stellar energy problem – the return to nuclear physics; 7– How the low mass stars perish; I loved this section and the work on planetary nebulae and white dwarfs; 8– The life and death of massive stars; another great section where the problems of the differing types of supernovae are discussed; 9– The Sun – lots about neutrinos in this final section.

The tag line for this book is ‘The controversial inception and emergence of the theory of stellar structure’, and this it certainly provides, but it goes a lot further than that and reminds us that we have not yet solved all the problems by some margin.

**Roger Pickard**

Roger is Director of the Variable Star Section and currently a Vice President of the Association.

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