1.	Record Nr. Autore Titolo	UNINA9910828278303321 Hansen Carl J Stellar Interiors : Physical Principles, Structure, and Evolution / / by Carl J. Hansen, Steven D Kawaler
	Pubbl/distr/stampa	New York, NY : , : Springer New York : , : Imprint : Springer, , 1994
	ISBN	1-4684-0214-5
	Edizione	[1st ed. 1994.]
	Descrizione fisica	1 online resource (XIV, 446 p.)
	Collana	Astronomy and Astrophysics Library, , 0941-7834
	Disciplina	520 523.86
	Soggetti	Observations, Astronomical Astronomy—Observations Astrophysics Geophysics Astronomy, Observations and Techniques Astrophysics and Astroparticles Geophysics/Geodesy
	Lingua di pubblicazione	Inglese
		inglose
	Formato	Materiale a stampa
	Formato	Materiale a stampa
	Formato Livello bibliografico	Materiale a stampa Monografia

	Transfer 4.2 The Diffusion Equation 4.3 A Brief Diversion into "?' s" 4.4 Radiative Opacity Sources 4.5 Heat Transfer by Conduction 4.6 Tabulated Opacities 4.7 References and Suggested Readings 5 Heat Transfer by Convection 5.1 The Mixing Length Theory 5.2 Variations on the MLT 5.3 References and Suggested Readings 6 Stellar Energy Sources 6.1 Gravitational Energy Sources 6.2 Thermonuclear Energy Sources 6.3 The Proton-Proton Chains 6.4 The Carbon-Nitrogen-Oxygen Cycles 6.5 Helium-Burning Reactions 6.6 Carbon, Neon, and Oxygen Burning 6.7 Silicon "Burning" 6.8 Neutrino Emission Mechanisms 6.9 Exercises 6.10 References and Suggested Readings 7 Stellar Modeling 7.1 The Equations of Stellar Structure 7.2 Polytropic Equations of State and Polytropes 7.3 The Approach to Real Models 7.4 References and Suggested Readings 8 Structure and Evolution of the Sun 8.1 The Sun as the Prototype Star 8.2 From the ZAMS to the Present 8.3 The Solar Neutrino "Problem" 8.4 The Role of Rotation in Evolution 8.5 References and Suggested Readings 9 Structure and Evolution of White Dwarfs 9.1 Observed Properties of White Dwarfs 9.2 White Dwarf Evolution 9.3 The Magnetic White Dwarfs 9.4 References and Suggested Readings 10.2 Nonadiabatic Radial Motions 10.3 An Introduction to Nonradial Oscillations 10.4 Helioseismology 10.5 Asteroseismology of White Dwarfs 10.6 References and Suggested Readings A Glossary B Physical and Astronomical Constants C Sample Computer Codes C.1 The ZAMS Model Builder C.2 Adiabatic Pulsation Code.
Sommario/riassunto	That trees should have been cut down to provide paper for this book was an ecological aflront. From a book review Anthony Blond (in the Spectator, 1983) The first modern text on our subject, Structure and Evolution of the Stars, was published over thirty years ago. In it, Martin Schwarzschild described numerical experiments that successfully reproduced most of the observed properties of the majority of stars seen in the sky. He also set the standard for a lucid description of the physics of stellar interiors. Ten years later, in 1968, John P. Cox's tw~volume monograph Principles of Stellar Structure appeared, as did the more specialized text Principles of Stellar Evolution and Nuc1eosynthesis by Donald D. Clayton-and what a difference ten years had made. The field had matured into the basic form that it remains today. The past twenty-plus years have seen this branch of astrophysics flourish and develop into a fundamental pillar of modern astrophysics that addresses an enormous variety of phenomena. In view of this it might seem foolish to offer another text of finite length and expect it to cover any more than a fraction of what should be discussed to make it a thorough and self-contained reference. Well, it doesn't. Our specific aim is to introduce only the fundamentals of stellar astrophysics. You will find little reference here to black holes, millisecond pulsars, and other "sexy" objects.