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	Autore	Berg, Lothar
	Titolo	Introduction to the operational calculus / by Berg
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	Collana	North-Holland series in applied mathematics and mechanics
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	Autore	Wheeler J. Craig
	Titolo	Cosmic catastrophes : exploding stars, black holes, and mapping the universe / / J. Craig Wheeler [[electronic resource]]
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Nota di contenuto	1. Setting the stage : star formation and hydrogen burning in single stars -- 1.1. Introduction -- 1.2. Background -- 1.3. Evolution -- 2. Stellar death : the inexorable grip of gravity -- 2.1. Red giants -- 2.2. Stellar winds -- 2.3. Quantum deregulation -- 2.4. Core collapse -- 2.5. Transfiguration -- 3. Dancing with stars : binary stellar evolution -- 3.1. Multiple stars -- 3.2. Stellar orbits -- 3.3. Roche lobes : the cult symbol -- 3.4. The first stage of binary evolution : the Algol paradox -- 3.5. Mass transfer -- 3.6. Large separation -- 3.7. Small separation -- 3.8. Evolution of the second star -- 3.9. Common-envelope phase -- 3.10. Gravitational radiation -- 4. Accretion disks : flat stars -- 4.1. The third object -- 4.2. How a disk forms -- 4.3. Let there be light, and X-rays -- 4.4. A source of friction -- 4.5. A life of its own -- 4.6. Fat centers? The DAF zoo -- 5. White dwarfs : quantum dots -- 5.1. Single white dwarfs -- 5.2. Cataclysmic variables -- 5.3. The origin of cataclysmic variables -- 5.4. The final evolution of cataclysmic variables -- 6. Supernovae : stellar catastrophes -- 6.1. Observations -- 6.2. The fate of massive stars -- 6.3. Element factories -- 6.4. Collapse and explosion -- 6.5. Polarization and jets : new observations and new concepts -- 6.6. Type Ia supernovae : the peculiar breed -- 6.7. Light curves : radioactive nickel -- 7. Supernova 1987A : lessons and enigmas -- 7.1. The Large Magellanic Cloud awakes -- 7.2. The onset -- 7.3. Lessons from the progenitor -- 7.4. Neutrinos! -- 7.5. Neutron star? -- 7.6. The light curve -- 7.7. This cow's not spherical -- 7.8. Rings and jets -- 7.9. Other firsts -- 8. Neutron stars : atoms with attitude -- 8.1. History, theory leads, for once -- 8.2. The nature of pulsars, not little green men -- 8.3. Pulsars and supernovae, a game of hide and seek -- 8.4. Neutron star structure, iron skin and superfluid guts -- 8.5. Binary pulsars, "tango por dos" -- 8.6. X-rays from neutron stars, hints of a violent Universe -- 8.7. X-ray flares, a story retold -- 8.8. The Rapid Burster, none of the above -- 8.9. Millisecond pulsars -- 8.10. Soft gamma-ray repeaters, reach out and touch someone -- 8.11. Geminga -- 9. Black holes in theory : into the abyss -- 9.1. Why black holes? -- 9.2. The event horizon -- 9.3. Singularity -- 9.4. Being a treatise on the general nature of death within a black hole -- 9.5. Black holes in space and time -- 9.6. Black-hole evaporation : Hawking radiation -- 9.7. Fundamental properties of black holes -- 9.8. Inside black holes -- 10. Black holes in fact : exploring the reality -- 10.1. The search for black holes -- 10.2. Cygnus X-1 -- 10.3. Other suspects -- 10.4. Black-hole X-ray novae -- 10.5. The nature of the outburst -- 10.6. Lessons from the X-rays -- 10.7. SS 433 -- 10.8. Miniquasars -- 10.9. Giants among us -- 10.10. The middle ground -- 11. Gamma-ray bursts, black holes and the Universe : long, long ago and far, far away -- 11.1. Gamma-ray bursts : yet another cosmic mystery -- 11.2. The revolution -- 11.3. The shape of things -- 11.4. The supernova and gamma-ray-burst connection -- 11.5. The possibilities : birth pangs of black holes? -- 11.6. The short hard bursts -- 11.7. The future -- 11.8. The past in our future : the Dark Ages -- 12. Supernovae and the universe -- 12.1. Our expanding universe -- 12.2. The shape of the universe -- 12.3. The age of the universe -- 12.4. The fate of the universe -- 12.5. Dark matter -- 12.6. Vacuum energy, Einstein's blunder that wasn't -- 12.7.

Type Ia supernovae as calibrated candles and understood candles -- 12.8. Supernovae and cosmology -- 12.9. Acceleration! -- 12.10. The shape of the universe revisited -- 12.11. Dark energy -- 12.12. The fate of the universe revisited -- 13. Wormholes and time machines : tunnels in space and time -- 13.1. The mystery of time -- 13.2. Wormholes -- 13.3. Time machines -- 14. Beyond : the frontiers -- 14.1. Quantum gravity -- 14.2. When the singularity is not a singularity -- 14.3. Hyperspace perspectives -- 14.4. String theory -- 14.5. Brane worlds -- 14.6. A holographic universe -- 14.7. Coda.

Sommario/riassunto

From supernovae and gamma-ray bursts to the accelerating Universe, this is an exploration of the intellectual threads that lead to some of the most exciting ideas in modern astrophysics and cosmology. This fully updated second edition incorporates new material on binary stars, black holes, gamma-ray bursts, worm-holes, quantum gravity and string theory. It covers the origins of stars and their evolution, the mechanisms responsible for supernovae, and their progeny, neutron stars and black holes. It examines the theoretical ideas behind black holes and their manifestation in observational astronomy and presents neutron stars in all their variety known today. This book also covers the physics of the twentieth century, discussing quantum theory and Einstein's gravity, how these two theories collide, and the prospects for their reconciliation in the twenty-first century. This will be essential reading for undergraduate students in astronomy and astrophysics, and an excellent, accessible introduction for a wider audience.
