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Autore	Woolfson Michael M (Michael Mark)
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Particle Hydrodynamics; Appendix M: Free-Fall Collapse; Appendix N: Fragmentation and Binary Characteristics; Appendix O: Spin Slowing Due to a Stellar wind; Appendix P: The Virial Theorem and Kelvin-Helmholtz Contraction; Appendix Q: The Lifetime of Stars on the Main Sequence; Appendix R: The Eddington Accretion Mechanism; Appendix S: The Mass and Orbit of an Exoplanet; Appendix T: Radiation Pressure and the Poynting-Robertson Effect
Appendix U: Active Stars and Their Effect on a Stellar DiskAppendix V: The Structure and Decay of a Stellar Disk; Appendix W: The Formation of Exoplanets; Appendix X: Disrupting a Planetary System; Appendix Y: From Dust to Satellitesimals; Appendix Z: From Satellitesimals to Satellites; Appendix AA: The Tidal Heating of Io; Appendix AB: The Trojan Asteroids; Appendix AC: Orbital Precession; Appendix AD: The Temperature Generated by Colliding Planets; Appendix AE: Heating by Deuterium-Based Reactions; Appendix AF: The Thermal Evolution of the Moon
Appendix AG: The Abrasion of a Hemisphere of the MoonAppendix AH: The Rounding-off of a Highly Eccentric Satellite Orbit; Appendix AI: Continental Drift on Mars; Appendix AJ: The Oort Cloud and Perturbing Stars; Appendix AK: Planetary Perturbation of New Comets; Appendix AL: Reactions and Decays; Appendix AM: Cooling and Grain Formation; Index

Sommario/riassunto

The book begins with a historical review of four major theories for the origin of the Solar System in particular, or of planets in general, which highlight the major problems that need to be solved by any plausible theory. In many theories, including that which form the major theme of this book, the formation of planets and stars is intimately linked, so four chapters are devoted to the processes that can be described as the birth, life and death of stars. Recent observations that have revealed the existence of planets around many Sun-like stars are described in detail, followed by a clear exp