

An Introduction to Celestial Mechanics

This accessible text on classical celestial mechanics—the principles governing the motions of bodies in the solar system—provides a clear and concise treatment of virtually all the major features of solar system dynamics. Building on advanced topics in classical mechanics, such as rigid body rotation, Lagrangian mechanics, and orbital perturbation theory, this text has been written for well-prepared undergraduates and beginning graduate students in astronomy, physics, mathematics, and related fields. Specific topics covered include Keplerian orbits; the perihelion precession of the planets; tidal interactions among the Earth, Moon, and Sun; the Roche radius; the stability of Lagrange points in the three-body problem; and lunar motion. More than 100 exercises allow students to gauge their understanding; a solutions manual is available to instructors. Suitable for a first course in celestial mechanics, this text is the ideal bridge to higher-level treatments.

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