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3.5 Demonstration: Orbiting Binary System3.6 Problems; References; 4 Beyond the Newtonian Limit; 4.1 Post-Newtonian; 4.1.1 System of Point Particles; 4.1.2 Two-Body Post-Newtonian Motion; 4.1.3 Higher-Order Post-Newtonian Waveforms for Binary Inspiral; 4.2 Perturbation about Curved Backgrounds; 4.2.1 Gravitational Waves in Cosmological Spacetimes; 4.2.2 Black Hole Perturbation; 4.3 Numerical Relativity; 4.3.1 The Arnowitt-Deser-Misner (ADM) Formalism; 4.3.2 Coordinate Choice; 4.3.3 Initial Data; 4.3.4 Gravitational-Wave Extraction; 4.3.5 Matter; 4.3.6 Numerical Methods; 4.4 Problems
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7.2.1 Bayes's Theorem

Sommario/riassunto

This most up-to-date, one-stop reference combines coverage of both theory and observational techniques, with introductory sections to bring all readers up to the same level. Written by outstanding researchers directly involved with the scientific program of the Laser Interferometer Gravitational-Wave Observatory (LIGO), the book begins with a brief review of general relativity before going on to describe the physics of gravitational waves and the astrophysical sources of gravitational radiation. Further sections cover gravitational wave detectors, data analysis, and the outlook of gravitation