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7.5 Ray-Tracing in Schwarzschild Spacetime7.6 Black Hole as a Gravitational Lens; 7.7 Radiation from an Object Moving Around the Black Hole; 7.8 Equations of Motion in 'Tilted' Spherical Coordinates; 7.9 Magnetized Schwarzschild Black Hole; 7.10 Particle and Light Motion Near Higher-Dimensional Black Holes; 8 Rotating Black Holes; 8.1 Kerr Spacetime; 8.2 Ergosphere. Horizon; 8.3 Particle and Light Motion in Equatorial Plane; 8.4 Spinning up the Black Hole; 8.5 Geodesics in Kerr Spacetime: General Case; 8.6 Light Propagation; 8.7 Hidden Symmetries of Kerr Spacetime
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10.3 Black Holes and Search for Gravitational Waves

Sommario/riassunto

What is a black hole? How many of them are in our Universe? Can black holes be created in a laboratory or in particle colliders? Can objects similar to black holes be used for space and time travel? This text discusses these and many other questions providing the reader with the tools required to explore the Black Hole Land independently.