

# Suggested Readings on Black Holes, Thermodynamics and Information

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I append “(strongly suggested)” to those readings I think are particularly important, whether because they provide necessary background, or because they are classics in the field, or because they are in my opinion superlative in some other way.

## 1 Laws of Black Hole Mechanics and Thermodynamics

1. [Bardeen, Carter, and Hawking \(1973\)](#), “The Four Laws of Black Hole Mechanics” (**strongly suggested**)
2. [Carter \(1979\)](#), “The General Theory of the Mechanical, Electromagnetic and Thermodynamic Properties of Black Holes” (**strongly suggested**)
3. [Gao and Wald \(2001\)](#), “The ‘Physical Process Version’ of the First Law and the Generalized Second Law for Charged and Rotating Black Holes” (**strongly suggested**)
4. [Israel \(1986\)](#), “Third Law of Black Hole Mechanics: A Formulation of Proof”
5. [Israel \(1998\)](#), “Gedanken Experiments in Black Hole Mechanics”
6. [Israel \(1992\)](#), “Thermodynamics and Internal Dynamics of Black Holes: Some Recent Developments”
7. [Wald \(1999a\)](#), “Gravitation, Thermodynamics and Quantum Theory”
8. [Wald \(1999b\)](#), “The Thermodynamics of Black Holes” (**strongly suggested**)

## 2 Black Hole Entropy

1. [Bekenstein \(1972\)](#), “Black Holes and the Second Law” (**strongly suggested**)
2. [Bekenstein \(1973\)](#), “Black Holes and Entropy” (**strongly suggested**)
3. [Israel \(1973\)](#), “Entropy and Black Hole Dynamics” (**strongly suggested**)
4. [Bekenstein \(1974\)](#), “Generalized Second Law of Thermodynamics in Black-Hole Physics” (**strongly suggested**)
5. [Bekenstein \(1994\)](#), “Do We Understand Black hole Entropy?”
6. [Jacobson, Marolf, and Rovelli \(2005\)](#), “Black Hole Entropy: Inside or Out?” (**strongly suggested**)
7. [Jacobson \(1999\)](#), “On the Nature of Black Hole Entropy”
8. [Sorkin \(2005\)](#), “Ten Theses on Black Hole Entropy” (**strongly suggested**)
9. [Unruh and Wald \(1982\)](#), “Acceleration Radiation and the Generalized Second Law of Thermodynamics”
10. [Wald \(1993\)](#), “Black Hole Entropy is the Noether Charge”

## 3 Hawking Radiation, Black-Hole Evaporation and Information

1. [Hawking \(1974\)](#), “Black Hole Explosions?”
2. [Davies and Taylor \(1974\)](#), “Do Black Holes Really Explode?”
3. [Hawking \(1975\)](#), “Particle Creation by Black Holes” (**strongly suggested**)
4. [Hawking \(1976\)](#), “Breakdown of Predictability in Gravitational Collapse” (**strongly suggested**)
5. [Balasubramanian, Marolf, and Rozali \(2006\)](#), “Information Recovery from Black Holes”
6. [Banks, Susskind, and Peskind \(1984\)](#), “Difficulties for the Evolution of Pure States into Mixed States”
7. [Bekenstein \(2000\)](#), “The Limits of Information”
8. [Belot, Earman, and Ruetsche \(1999\)](#), “The Hawking Information Loss Paradox: The Anatomy of Controversy” (**strongly suggested**)
9. [Fredenhagen and Haag \(1990\)](#), “On the Derivation of the Hawking Radiation Associated with the Formation of a Black Hole”
10. [Hartle \(1998\)](#), “Generalized Quantum Theory in Evaporating Black Hole Spacetimes” (**strongly suggested**)
11. [Hartle \(1994\)](#), “Spacetime Information”
12. [Hawking \(1998\)](#), “Loss of Information in Black Holes” (**strongly suggested**)
13. [Hawking \(2005\)](#), “Information Loss in Black Holes”
14. [Hayward \(2005\)](#), “The Dis-Information Problem for Black Holes (Conference Version)” (**strongly suggested**)

15. [Jacobson \(2003\)](#), “Introduction to Quantum Fields in Curved Spacetime and the Hawking Effect” (strongly suggested)
16. [Jacobson and Parentani \(2003\)](#), “Horizon Entropy”
17. [Page \(1980\)](#), “Is Black-Hole Evaporation Predictable?”

## 4 Black Holes in Quantum Gravity

1. [Bombelli, R. Koul, and Sorkin \(1986\)](#), “Quantum Source of Entropy for Black Holes”
2. [Bousso \(1999\)](#), “Holography in General Spacetimes”
3. [Bousso \(2006\)](#), “The Holographic Principle for General Backgrounds”
4. [Strominger and Vafa \(1996\)](#), “Microscopic Origin of the Bekenstein-Hawking Entropy”
5. [Susskind, Thorlacius, and Uglum \(1993\)](#), “The Stretched Horizon and Black Hole Complementarity”
6. [Susskind \(1995\)](#), “The World as a Hologram”
7. [’t Hooft \(1985\)](#), “On the Quantum Structure of a Black Hole” (strongly suggested)
8. [’t Hooft \(2000\)](#), “The Holographic Principle” (strongly suggested)

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