

# Hawking Radiation

Include Only If Paper Has a Subtitle

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# Outline

## Motivation

The Basic Problem That We Studied

## Motivations

## Approaches

## Interpretations

# Motivations for the Radiation

## Conceptual developments

- ▶ Quantum physics
  - ▶ Uncertainty principle, see e.g. [14]
  - ▶ Vacuum polarisation, see e.g. [7]
- ▶ Classical physics
  - ▶ (Fictitious) entropy and temperature of black holes [1, 2]
  - ▶ Penrose process and super-radiance

# Motivations for the Radiation

## Technical developments

- ▶ Field theory in curved space-time: particle creation
  - ▶ in dynamical universes, see e.g. [13]
  - ▶ for accelerated observers [15, 5, 8]

# Quantum fields

On collapsing-star background

[9, 11]

# Quantum fields

On eternal-black-hole background

[4, 7]

# Interpretations

- ▶ Thermal-like radiation
  - ▶ 123
- ▶ Entropies and temperatures
- ▶ Progressive evaporation
- ▶ Final fate
- ▶ Information
  - ▶ Non-conservation [10]
  - ▶ Conservation [12]
- ▶ Violation of unitarity

# Summary

- ▶ The **first main message** of your talk in one or two lines.
  - ▶ The **second main message** of your talk in one or two lines.
  - ▶ Perhaps a **third message**, but not more than that.
- 
- ▶ Outlook
    - ▶ Something you haven't solved.
    - ▶ Something else you haven't solved.





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