

## *people*

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## Faculty

SCOTT HUGHES

# Professor of Physics



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**Related Links:**

[MIT Kavli Institute for Astrophysics and Space Research](#)

[LIGO: Laser Interferometer Gravitational-wave  
Observatory](#)

[LISA: Laser Interferometer Space Antenna](#)

## Area of Physics:

[Compact Objects: Gravitation](#)

## Research Interests

Professor Hughes' research is in astrophysical general relativity, focusing in particular upon black holes and gravitational-wave sources.

Some questions which drive his present work are: What measurements can be made to test in detail the hypothesis that massive black hole candidates are in fact the black holes of general relativity? What can we learn about the cosmic evolution of black holes and the structures that host them from future space-based gravitational-wave measurements? Can we design a network of ground-based detectors to optimally measure the characteristics of important gravitational-wave sources?

Much of this work involves the use (and sometimes the abuse) of general relativistic perturbation theory.

## Biographical Sketch

Professor Hughes attended Cornell University as an undergraduate, earning a B.A. in Physics in 1993. He received his Ph.D. in Physics from the California Institute of Technology, working with Professor Kip Thorne. After spending one year working in computational relativity at the University of Illinois, he returned to Caltech as a postdoc and instructor in the Physics Department. Professor Hughes then spent two and half years as a postdoc in the Kavli Institute

for Theoretical Physics at the University of California, Santa Barbara, before moving to MIT in January 2003.

## Selected Publications

Current [publications](#) for Professor Hughes can be found on his [group page](#) [<http://gmunu.mit.edu>].

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