

## View to a black hole

The science fiction author Arthur C. Clarke famously wrote that “any sufficiently advanced technology is indistinguishable from magic.” While he wasn’t writing specifically about making movies, his statement applies. Filmmakers use advanced technology and advice to create magic onscreen.

The movie *Interstellar* takes place in the near future. Things are dismal. Earth is dying. Looking for a new home planet, a crew of astronauts blasts off. They travel through a *wormhole*. It is like a space tunnel that leads them to a distant planetary neighborhood. During their adventure, the astronauts also zip close to a [black hole](#) <sup>[1]</sup> called Gargantuan.

Astronomers have never seen wormholes, although scientists predicted the existence of these tunnels as early as 1916. Kip Thorne, a physicist at the California Institute of Technology in Pasadena, has studied them for decades. Not surprisingly, Thorne was closely involved with the making of *Interstellar*. In 2005, Lynda Obst — a former girlfriend and current Hollywood producer — told him about her idea for a movie about astronauts traveling by a wormhole. (This would be Obst’s second movie involving the space tunnels. She also worked on *Contact*. In that 1997 film, the character played by Jodie Foster encounters alien civilizations after traveling through multiple wormholes.)

Thorne loved the idea. For months, he and Obst swapped ideas over dinners, e-mails and phone calls. Most important to him, however, was the idea of a movie “grounded from the outset in real science,” he writes in his book: *The Science of Interstellar*. He wanted the filmmakers to respect the science “and weave it into the movie’s fabric.” Thorne’s vision was that audiences would get an idea of the amazing things that might exist in the universe. And all of what they encountered on screen would respect the laws of physics.

Thorne wasn’t the only scientist involved in the movie. Graduate students at the University of California, Los Angeles, created one video that showed what a person might see near a black hole. A *black hole* is a tiny place in space packed with matter. Its gravitational pull is so strong that nothing — or almost nothing — can escape it. Another video showed how a black hole’s pull can bend light that’s traveling nearby. Thorne showed the videos to *Interstellar*’s special effects team. Those experts relied on those videos when creating their visuals for the movie. Kirby, the University of Manchester scientist and author, says filmmakers have been consulting with scientists throughout movie history. “That surprises people,” he says. Early on, though, such meetings were unusual. Then everything changed. Kirby calls the current (and growing) use of scientists in movies a “post-*Jurassic Park* phenomenon.”

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