INTERVIEW WITH KIP THORNE AND LIA HALLORAN BY TERESA MILLER ARCHER
PHOTOGRAPHY BY SMITHDAVIS • **STYLING BY** DOLLY PRATT
HAIR BY AVIVA PEREA USING ORIBE AT STARWORKS ARTISTS • **MAKEUP BY H**EATHER CVAR

When I first considered the interview I was going to have with Lia Halloran and Kip Thorne, I thought to myself that almost no topic such as theirs could be farther from my specialties. Thorne is a renowned astrophysicist with over 50 years of work with his contemporaries under his belt. He's received too many awards to list in this article, including the Albert Einstein Medal, the Gruber Prize in Cosmology, the Kavli Prize in Astrophysics, and has been a Woodrow Wilson Fellow, Danforth Fellow, Guggenheim Fellow, Fulbright Fellow, and is Richard P. Feynman Professor of Theoretical Physics, Emeritus, at the California Institute of Technology. He's written books contributing greatly to our understanding of gravitational theory including "Gravitation" and "Black Holes and Time Warps, Einstein's Outrageous Legacy." In his own words, when he retired he then worked with more than 50 Ph.D. students, and eventually decided that "it was time to do something different, and then immediately started collaborations." Those collaborations being preparation, consultancy and brainstorming for the blockbuster movie "Interstellar." He wrote the original treatment and was a producer on the film—his idea and collaboration with Lynda Obst launched the film. His particular focus is on black holes and what he very lovingly calls "strange warped space." I knew as I pondered the phone call that I would have very little to contribute to the conversation.

Then I looked up Halloran. Halloran is an assistant professor of art at Chapman University, and her current exhibit at Caltech's Cahill Center for Astronomy and Astrophysics, "Deep Sky Companion," features a series of 110 pairs of paintings and photographs of objects from 17th century French comet hunter, Charles Messier. The work featured here is from her series "Your Body is a Space That Sees," cyanotype prints that, in her words, "interpret a fragmented history and represent a female-centric astronomical catalogue of craters, comets, galaxies and nebula." It was just awarded a National Endowment for the Arts Art Works Grant. As an artist, she has stood apart for her risk taking and new outlook on finding places where experience and art meet. She's a teacher and a studio artist, and began working with Thorne when he found himself in need of someone to take his theories and bring them more visually to life. When we spoke about her installations she told me:

"I don't want to create something you could look at and walk away. I want the viewer to have to pause. That's built in my intention, to get you to continue to think about exactly what you are looking for, that sense of time, perception … That each work would evolve in meaning the longer you would sit with it."

In other words, both of these people not only feel right at home in the unknown and the uncertain; they revel in it, and then create.

Almost immediately upon beginning our discussion, I realized I had found something unexpected. I found two extraordinarily generous people who quite obviously enjoyed and respected one another. It was difficult to ask one of them a question without them affirming and including the other, something neither field (or any specialty) is known particularly well for. They laughed easily while explaining complex topics above my pay grade, and so I started by asking how these two even began their journey together.

"Well, we met at a party, and I discovered that Lia was an artist, a fabulous artist, whose father was a physicist and so she actually speaks the language of physics and we could communicate …" Thorne began, but Halloran took the story over with—

"Yeah, my favorite part about meeting Kip at this party was that he said to me that there was a young filmmaker who was interested in making a film that engaged some of his science and he needed someone to help visualize some of the strangeness of the universe, and that young filmmaker was Spielberg."

Kip continued, "So I needed someone who could make drawings and paintings of black holes and wormholes to convey the ideas that would be in this film, and Lia helped me out. It was about 2006. The movie did finally become "Interstellar" and it was eventually directed by Christopher Nolan."

Even though we were talking on the phone, the synergy and gladness with which these two were telling their story drew me in. I could somehow easily imagine how much fun they would've had working together, as Halloran explained their strategy for prepping for the film.

"Kip and I would have lunch," she recalled, "and he would talk about the strangeness of warped space, and I would wrap my head around it and make really quick gestures or drawings of what they could possibly look like so I wouldn't consider them finished paintings, it was more of a visual brainstorm, where he would then come and draw on top of my drawings, it was a really nice collaboration and dialogue."

Kip again jumped in with, "And later when the movie "Interstellar" came out, I published this book about the science of "Interstellar," which I used one of Lia's drawings from that period over and over again. If you look back at that drawing you see her sketch that she drew that shows both black holes and worm holes on the same drawing."

"And that drawing was on a tiny little notebook Moleskine I had!" Lia laughed. "Had I known it would be passed around to Spielberg and shown so much, I would've probably used nicer paper. It was literally ripped out of a notebook."

It seemed so peculiar and yet so very a Hollywood story, this image of Spielberg and Nolan and art department people passing around this slightly rough image drawn at a coffee date in order to prep for filming. The rest is more than history—they are going into the future with more collaboration in store, including an upcoming book of ink drawings by Halloran and poetry by Thorne. The book will imagine Halloran's wife Felicia as a space traveler having encounters with black holes and Thorne's response in poetry. It's certainly a new step for them both but one that sounds like the most romantic science book I've ever seen. I mentioned to them an account of the night my husband and I watched "Interstellar." If you haven't seen it, to say that it presents many intriguing but mind-bending possibilities that alter how we think of time and life here is still an understatement. I told them that we had a little difficulty falling right asleep after watching it and they laughed.

"Kip did that on purpose!" Halloran asserted.

"Christopher Nolan did that on purpose," Thorne cut in.

Halloran seemed to disagree, "I think you had a lot to do with it! He wanted to leave you with a lot of questions."

I ask them about the relationship between art and science, since the two rarely meet—at least not in ways that we hear too much about. Halloran began.

"I think art can do something that science can't and they are autonomous in themselves, but together they talk about creativity, problem solving, a fascination with nature, and I think our collaboration presents one aspect of 'art and science.'"

Thorne agreed: "As a scientist, a physicist, I build intuition by drawing pictures, having mental pictures of shapes, forms … these pictures are very close to the art that Lia does. It was natural

Top: The Kooples from Bloomingdale's
Jacket: Sandro from Bloomingdale's
Bottom: Sandro from Bloomingdale's
Rings: Amarilo, Personal
& Washed Ashore Adornments
Shoes: Paul Smith
Earrings: Upper Metal Class

Top: Vince
Coat: Sandro from Bloomingdale's
Pants: Scotch & Soda
Shoes: Esquivel
Rings: Personal
Earrings: Upper Metal Class

to take the tools I use in my research and convert them into a painting that conveyed the ideas that I'm working with."

"… and I think for me, I'm not a designer." Halloran continued, "I'm not interested in creating didactic illustrations. For me this was an opportunity to do something very specific and very surreal. Kip is really wonderful at making sure that these paintings are accurate. But they also, more than anything, convey the experience of what warped space could be like, so you aren't looking at a designed illustration, but that somehow it might tap into your own imagination so that you can address that question of 'what can art do for science that is different than how science presents science?"

Thorne continued, "I will say that my objective in this film and the books along with it was to make people get intrigued in weird science and maybe go explore. For me the film was a vehicle for that. There's no way that I as a physicist could reach 300 million people except through a movie like "Interstellar" … it's a wonderful way to convey the beauties of science to a very large audience."

Both Thorne and Halloran, with their love of science, have found a way through their work to speak to people they never otherwise would have had a chance to reach out to. Halloran continued,

"It's not like people didn't know about black holes. What is it about the movie that captivated everyone? For me I felt like I experienced it; it wasn't in my head, it was in my body, especially between the filmmaking, the cinematography, and the collaboration between Hans Zimmerman and Kip (Thorne and Zimmerman created a piece they have performed live twice). So as we talk about art, we can even ask, 'Could music convey the concept of a black hole?' Watch that movie and you can feel it in your body in a way that's different than reading a technical paper. There's something about the experience of humans that we want to explore and Kip has tapped into the ideas of curiosity and exploration. I think that's one of the most exciting things art can offer to science."

I felt like I could jump in with my amateur, child's play query of' "Can you please explain warped space to me? In any way that I—and all of us who watched "Interstellar" with our face all scrunched up—could somehow understand?" Here's what Thorne said:

"… Imagine yourself an ant that lives on a trampoline stretched across supports. The trampoline's shape is changed by rocks or things put on it. As an ant you walk around it and explore maybe the measurements that keep changing, and discovering how weird it is. Our universe is three dimensions instead of two dimensions …"

It's in moments like that when I am struck with wonder and I find out in conversation that the team at Caltech's Laser Interferometer Gravitational-Wave Observatory (LIGO), which Kip co-founded 40 years ago, has discovered gravitational waves emitting from a collision of two black holes 1.3 billion light years ago. Now that's a legacy, I think to myself. I ask Thorne if the everyday person knew one thing about astrophysics, in short, what would it be? His answer was:

"How beautiful it is. How wonderful the universe is, and how amazing it is that we are able to comprehend it."

I'm not sure I hardly comprehend it, but with collaborations as symbiotic and harmonious as the ones Halloran and Thorne are bringing to culture, my chances just increased exponentially.

Halloran's work can be seen at www.liahalloran.com, and the mentioned upcoming collaboration of prints and poetry with Thorne has a TBD date of publishing.