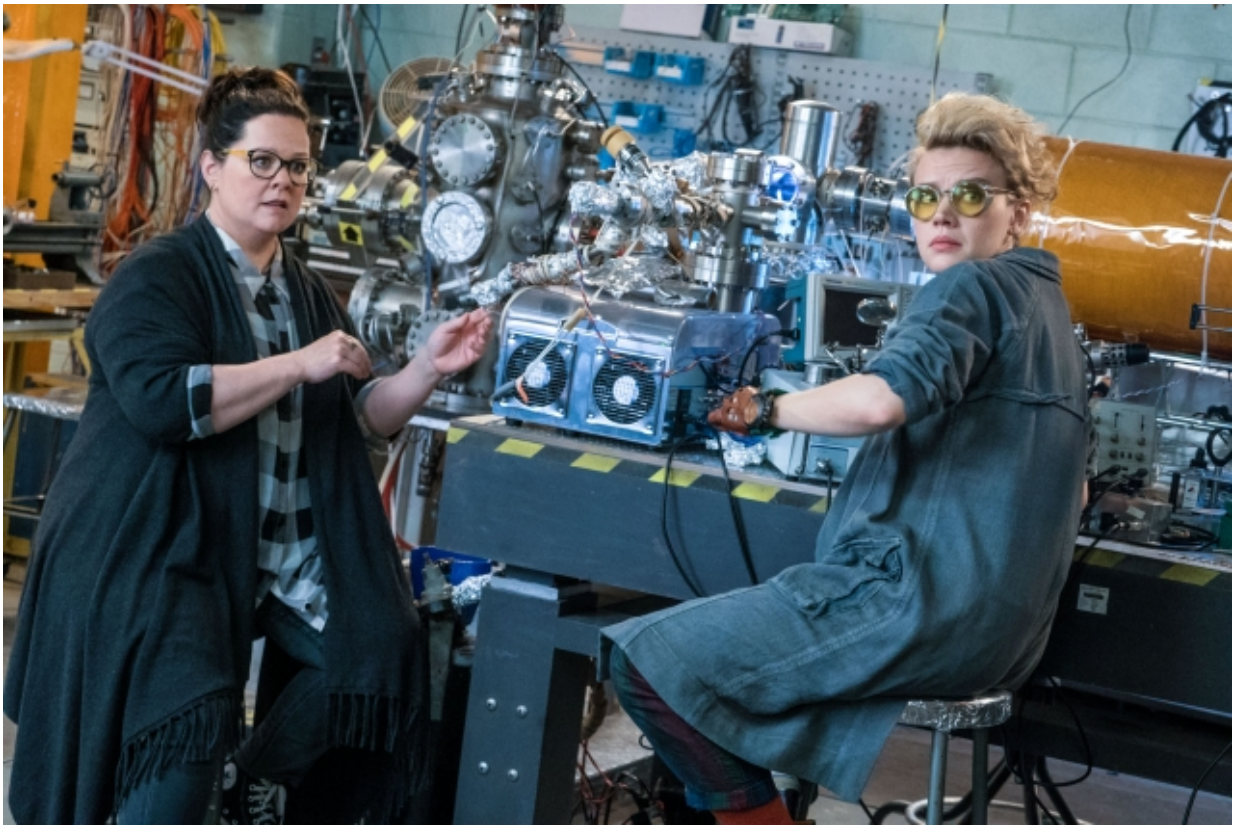


How MIT gave "Ghostbusters" its "geek cred"

July 18 2016, by Meg Murphy



Abby Yates (Melissa McCarthy, left), a gung-ho scientist with expertise in the paranormal, and Jillian Holtzmann (Kate McKinnon, right), an eccentric engineer, tinker in a nearly perfect replication of an MIT lab. Credit: Sony Pictures

The energetic researchers who grounded the new "Ghostbusters" in hard

science—giving it "geek cred"—are using a flurry of media attention to alter public perceptions.

Janet Conrad and Lindley Winslow, colleagues in the MIT Department of Physics and researchers in MIT's Lab for Nuclear Science, were key consultants for the all-female reboot of the classic 1984 supernatural comedy that is opening in theaters today. And the creative side of the STEM fields—science, technology, engineering, and mathematics—will be on full display.

Creativity is, after all, a driving force at MIT, says Conrad. "MIT is like a giant sandbox. You can find a spot and start building your castle, and soon other people will come over to admire it and help. There is a sense that it is okay to think big and to play here that is really wonderful. Keeping in mind that I have an office full of physics toys, I feel like I fit right in."

MIT Chancellor Cynthia Barnhart, the first woman to hold the post, says it's inspiring to see faculty members influence [pop culture](#) for the good. "At MIT, we know that being 'a geek' is cool. Movies like this have the potential to tell the whole world that. It's such an important, powerful message for young people—especially women—to receive," she says.



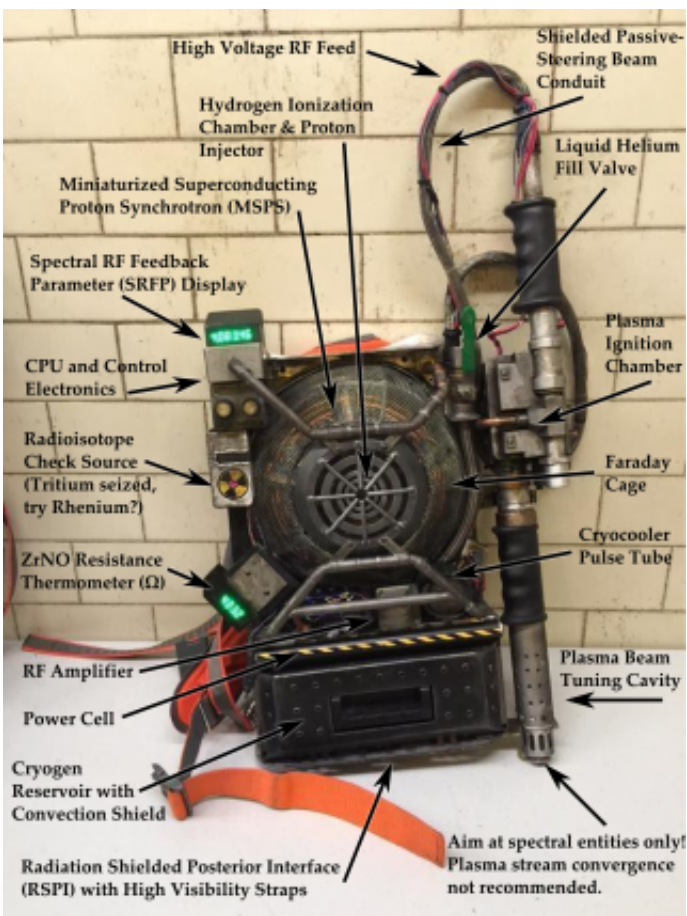
Erin Gilbert (Kristin Wiig) may be a physicist at Columbia University in the new "Ghostbusters," but her office is filled with objects suggested by MIT physicists Janet Conrad and Lindley Winslow. Credit: Sony Pictures

Kristin Wiig's character, Erin Gilbert, a no-nonsense physicist at Columbia University, is all the more convincing because of Conrad's toys. Her office features demos and other actual trappings from Conrad's workspace: books, posters, and scientific models. She even created detailed academic papers and grant applications for use as desk props.

"I loved the original 'Ghostbusters,'" says Conrad. "And I thought the switch to four women, the girl-power concept, was a great way to change it up for the reboot. Plus I love all of the stuff in my office. I was happy to have my books become stars."

Conrad developed an affection for MIT while absorbing another piece of pop culture: "Doonesbury." She remembers one cartoon strip featuring a girl doing Psets. She is discouraged until a robot comes to her door and beeps. All is right with the world again. The exchange made an impression. "Only at MIT do robots come by your door to cheer you up," she thought.

Like her colleague, Winslow describes mainstream role models as powerful, particularly when fantasy elements in film and television enhance their childhood appeal. She, too, loved "Ghostbusters" as a kid. "I watched the original many times," she recalls. "And my sister had a stuffed Slimer."



James Maxwell, a postdoc at MIT during the period he worked on

"Ghostbusters," helped devise the proton packs used in the film. An early film trailer teases to a behind-the-scenes video about the creation at Paranormal Studies Lab. Credit: Sony Pictures

Winslow jokes that she "probably put in too much time" helping with the remake. Indeed, Wired magazine recently detailed that: "In one scene in the movie, Wiig's Gilbert stands in front of a lecture hall, speaking on challenges of reconciling quantum mechanics with Einstein's gravity. On the whiteboards, behind her, a series of equations tells the same story: a self-contained narrative, written by Winslow and later transcribed on set, illustrating the failure of a once-promising physics theory called SU(5)."

Movie reviewers have been floored by the level of set detail. Also deserving of serious credit is James Maxwell, a postdoc at the Lab for Nuclear Science during the period he worked on "Ghostbusters." He is now a staff scientist at Thomas Jefferson National Accelerator Facility in Newport News, Virginia.

Maxwell crafted realistic schematics of how proton packs, ghost traps, and other paranormal equipment might work. "I recalled myself as a kid, poring over the technical schematics of X-wings and Star Destroyers. I wanted to be sure that boys and especially girls of today could pore over my schematics, plug the components into Wikipedia, and find out about real tools that experimental physicists use to study the workings of the universe."

He too hopes this behind-the-scenes MIT link with a Hollywood blockbuster will get people thinking. "I hope that it shows a little bit of the giddy side of science and of MIT; the laughs that can come with a spectacular experimental failure or an unexpected break-through."



Featuring an updated version of the famed ECTO-1 wagon (pictured) used in the original 1984 "Ghostbusters," the 2016 reboot was filmed primarily in Boston, and faculty at MIT infused it with real science. Credit: Sony Pictures

The movie depicts the worlds of science and engineering, as drawn from MIT, with remarkable conviction, says Maxwell. "So much of the feel of the movie, and to a great degree the personalities of the characters, is conveyed by the props," he says.

Kate McKinnon's character, Jillian Holtzmann, an eccentric engineer, is nearly inseparable from, as Maxwell says, "a mess of wires and magnets and lasers"—a pile of equipment replicated from his MIT lab. When she talks proton packs, her lines are drawn from his work.

Keep an eye out for treasures hidden in the props. For instance, Wiig's character is the recipient of the Maria Goeppert Mayer "MGM Award" from the American Physical Society, which hangs on her office wall. Conrad and Winslow say the honor holds a special place in their hearts.

"We both think MGM was inspirational. She did amazing things at a time when it was tough for women to do anything in physics," says Conrad. "She is one of our favorite women in physics," adds Winslow. Clearly, some of the film's props and scientific details reflect their personal predilections but Hollywood—and the nation—is also getting a real taste of MIT.

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