Fuchs went on to predict that having the tech campus in New York City will create a symbiotic flow of people and ideas, which will end up attracting people—and philanthropy—to Cornell in Ithaca, not just New York City.

“It elevates the visibility of Ithaca as a city and Tompkins County and all of this environment we love, and puts us on a worldwide stage that we’ve never had before as a community,” Fuchs said.

He noted, for example, the inaugural tech startup fair held in March, “which had over 1,000 attendees, probably more than a thousand people in Ithaca having the tech campus in New York City and CornellNYC Tech, said he and Collins are engaging with faculty members to commence academic planning for the new campus. As soon as accreditations and approvals are in place, students will be starting admitted to specific degree programs, initially being admitted to specific academic planning for the new campus site. Phase I construction will commence in early 2015 and is scheduled to open in 2017. —Anne Ju

In movie magic, people and objects can appear or disappear more from place to place in an instant. Stop the camera, move things around and start it again. Now Cornell researchers have demonstrated a similar “temporal cloak”—an actual very small-scale—in the transport of information by a beam of light. The trick is to create a gap in the beam of light, have the hidden event occur as the gap goes by and then stitch the beam back together. Alexander Gaeta, professor of applied and engineering physics, and colleagues looked for a way in the Jan. 5 issue of the Journal of Nature. The researchers created what they call a time lens, which can manipulate and focus signals in time, analogous to the way a glass lens focuses light in space. They use a technique called four-wave mixing, in which two beams of light, a “signal” and a “pump,” are sent together through an optical fiber. The two beams interact and change the wavelength of the signal up. To begin creating a time gap, the researchers first bump the wavelength of the signal up, then by flipping the wavelength of the pump beam, bump it down. When the beam then passes through another very, very long stretch of optical fiber, light passing through a transparent material is slowed down just a bit, and how much it is slowed varies with the wavelength. So the lower wavelength pulls ahead of the higher, leaving a gap, like the hare ahead of the tortoise. During the gap the experimenters introduced a brief flash of light at a still higher wavelength that would cause a glitch in the beam coming out the other end. Then the split beam passes through more optical fiber with a different composition, engineered to slow lower wavelengths more than higher. The higher wavelength part of the signal, creating a gap in which the cloaked event takes place. A second filter works in the opposite way from the first, letting the lower wavelength catch up, and a final split-time lens brings the beam back to the original wavelength, leaving no trace of what happened during the gap. —Bill Stover

EIGHTH STUDENT-DESIGNED WATER PLANT RISES IN HONDURAN TOWN

Atima, HONDURAS—This spring, nearly every home in this modest Honduran hilltop town will have safe, clean drinking water, thanks to a water treatment plant principally designed by Cornell Engineering students. The Atima plant, under construction, is the eighth project of AguaClara, Cornell’s longstanding partner is Agua manufacturer in civil and environmental engineering. The experiment was inspired, said Gaeta, by the theoretical proposal for a space-time cloak or “history editor” published by Martin McCaill, professor of

The researchers first bump the wavelength of the signal now catches the intruding signal. Both parts back to the original wavelength. The experiment was funded by the Defense Advanced Research Project Agency and by Cornell’s Center for Nanoscale Systems, which is supported by the National Science Foundation and the New York State Division of Science, Technology and Innovation (NYSIT). —Bill Stover

AguaClara students visiting Honduras Jan 6-20. See original existing water plants and help improve others, including one in Marcala, where they installed a new mini-facility from RPF, AguaClara’s RFP winner. Monica Weber-Shirk, senior lever in civil and environmental engineering. It was the seventh such adventure for AguaClara; the winter break trip is an integral part of the students’ connection with their work and their ability to experience the political and social aspects of implementing water plants. Students see so much of the computer software engineering they use for design that “it’s interesting to see our actual physical processing going on,” said Tori Klug. “It’s also really good we’re forming relationships with everyone down here.”

AguaClara’s longstanding partner is Agua Para el Pueblo (APP), a Honduran nonprofit organization that offers technical expertise and education to help municipalities implement water treatment systems. This year’s AguaClara team visited working plants, plants in process and future plant sites, such as one in early design phases in the town of San Nicolas. A previous generation of AguaClara students invented an automated design tool that has greatly increased the efficiency with which students can generate basic designs for new plants. Improvements are constantly being made on the tool, and Weber-Shirk says it is a key reason why AguaClara plants can be scaled to fit individual communities. On site, the students can deal with many unknowns, many of which cannot be solved from an amazing accomplishment in a world of failed development projects. That AguaClara works so well is due to its partnerships on the ground. Antonio Elvir, APP’s social and education coordinator for AguaClara’s projects, is the students’ key liaison with Honduran communities. Also, for the past several years, Sarah Long ‘09, Jeff Will ’10, M.Eng. ’11, Dan Smith ’06 and others have moved to Honduras to work

In Ithaca this semester, Klug and Newcomb “It’s also really good we’re forming relationships with everyone down here.”

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