



A POWERFUL DEVICE: Optics professor Chunlei Guo calls the new type of interferometer he designed with PhD candidate Billy Lam “a revolutionary step forward” in measuring the properties of ultrafast laser beams.

Measuring Light, Point by Point

Measuring beams of light can help scientists perform tasks ranging from detecting distant planets to treating an aberration in the human eye. Now researchers at the Institute of Optics have devised a simpler way to measure beams of light—even superfast, pulsed laser beams that have required complicated devices to characterize their properties.

The new device, developed by Chunlei Guo, professor of optics, and Billy Lam, a PhD student in his lab, promises to give scientists an unprecedented ability to fine-tune even the quickest pulses of light for a host of applications.

The device consists of a compact optical cube, assembled from two prisms. When a laser beam shines through the cube, the device creates a stable

interference pattern from which researchers measure key spatial characteristics of light beams: amplitude, phase, polarization, wavelength, and—in the case of pulsed beams—the duration of the pulses.

Unlike traditional devices, which measure an average along an entire beam, Guo and Lam’s device allows measurements at each point of a beam. That

level of precision is especially important in imaging.

“If a beam is not perfect, and there is a defect on the image, it’s important to know the defect is because of the beam and not because of a variation in the object you are imaging,” says Guo.

The device is described in *Nature Light: Science and Applications*. —Bob Marcotte

When Parents Fight, Kids May Benefit from Strong Sibling Bonds

A study led by researchers in the Department of Clinical and Social Sciences in Psychology shows that strong sibling bonds may offset the negative effects of parental strife. The study is published in the journal *Child Development*.

The researchers looked at 236 adolescents and their families, whom they followed over the course of three years. The families were recruited through school districts and community centers in a moderately sized metropolitan area in the

northeastern United States and a small city in the Midwest. The researchers caution that the families studied were mostly white and middle class, and the findings should not be generalized to families of all races or socioeconomic status.

The researchers found that the adolescents who witnessed high levels of acrimony between their parents responded with greater distress to parental conflict a year later.

Yet the researchers showed that teens with strong sibling

relationships were protected from a similar type of distress in response to later parental disagreements and fights.

According to lead author Patrick Davies, a professor of psychology, siblings serve many of the same functions as peers.

For example, they may be involved in joint activities such as sports and introduce each other to settings and relationships outside the family that help to distract them from the distress in high-conflict homes.

“Additionally, siblings may

develop friendship bonds that involve shared warmth, disclosure about concerns, and support and corrective feedback—such as becoming a sounding board—for their perceptions about family life,” he says.

“We showed that having a good relationship with a brother or sister reduced heightened vulnerability for youth exposed to conflicts between their parents by decreasing their tendencies to experience distress in response to later disagreements between their parents.” —Sandra Knispel

‘Fighting’ Cancer May Detract Men from Palliative Care

Men with advanced cancer are 30 percent less likely than women to consider palliative care, according to a Medical Center study. Researchers believe the findings reflect social norms about gender roles—as well as widespread messages in the media and society about “fighting” cancer.

Often men see themselves as the family protector, says the study’s lead author, Fahad Saeed, a palliative care specialist and assistant professor of medicine and public health sciences. When struck with a serious illness, they usually want to be cast as a “fighter” or a “warrior,” and may view palliative care as giving up.

Saeed and his colleagues analyzed data from 383 individuals with advanced cancer between the ages of 22 and 90, who had been asked about their preferences for palliative care. Response options were: definitely no, possibly no, unsure, possibly yes, and definitely yes. The analysis accounted for other factors such as aggressiveness of the cancer, age, race, and financial status. But gender was the only factor

that significantly influenced preference for palliative care, according to the study, which was published in the *Journal of Pain and Symptom Management*.

Timothy Quill—a professor of medicine, of medical humanities and bioethics, and of psychiatry and an internationally recognized pioneer in palliative care—says “fighting” is perfectly compatible with palliative care. Patients sometimes confuse palliative care with hospice, although the two are distinct. Palliative care is designed to help patients navigate emotions, as well as to relieve symptoms such as pain, shortness of breath, or other medical issues that arise from the illness or its treatment.

Better communication around the myths and misunderstandings about palliative care might help to promote its services among men, according to the investigators, including senior author Paul Duberstein, a professor of medicine and of psychiatry, and director of research in the Division of Palliative Care at the Medical Center. —Leslie Orr



INTERESTED? Showing romantic interest may heighten sexual appeal.

Uncertainty in a Date Dampens Interest in a Mate

According to a new study, those who feel greater certainty that a prospective romantic partner reciprocates their interest will put more effort into seeing that person again, while rating the possible date as more sexually attractive than they would if they were less certain about the prospective date’s romantic intentions.

Published in *Computers in Human Behavior*, the study by researchers from Rochester as well as Israeli-based Interdisciplinary Center Herzliya found that uncertainty about potential partners’ romantic interest decreased their sexual appeal.

“People may protect themselves from the possibility of a painful rejection by distancing themselves from potentially rejecting partners,” says coauthor Harry Reis, a professor of psychology and Dean’s

Professor in Arts, Sciences & Engineering. While some scientists have argued that uncertainty spices up sexual desire, Reis says the team’s results suggest the opposite holds true. “People experience higher levels of sexual desire when they feel confident about a partner’s interest and acceptance,” he says.

Lead author Gurit Birnbaum, a social psychologist and associate professor of psychology at Herzliya, says the findings suggest that sexual desire may “serve as a gut-feeling indicator of mate suitability that motivates people to pursue romantic relationships with a reliable and valuable partner.” Conversely, “inhibiting desire may serve as a mechanism aimed at protecting the self from investing in a relationship in which the future is uncertain.” —Sandra Knispel