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Pop-Column: Making a big bang with lasers

Photons make you rich and sexy — I'll bet you anything□!

The incessant hum of the ventilation system blends with the sizzling of the soldering iron as it touches the damp sponge, releasing toxic fumes. A tangle of cables fills the space between the measuring instruments and the test rig, a daily hazard to be negotiated with the utmost care. We're in a research laboratory—and it has about as much sex appeal as a magazine column boring its readers with a clumsy attempt at scene setting□!

Leonard Hofstadter's lab experiences are in a whole different league. He is one of the leads in the U.S. sitcom "The Big Bang Theory," in which he plays a gifted physicist. In one episode, his girlfriend Penny, a waitress, pays him a visit in the lab, and Leonard shows her a floating hologram that can be controlled with gestures—a hologram based on laser technology.

Love, touch and photons

Penny, who normally dismisses Leonard's scientific explanations as "boooooring," is suitably impressed, and shortly afterwards we see Leonard sitting in the cafeteria, completely disheveled. The obvious conclusion is that lasers make you sexier□! And not just to waitresses—I'll bet you ten to one that any halfway decent venture capitalist would have found Leonard equally irresistible after his hologram demonstration.

Throw out the words venture capital and disruptive technologies, and most people immediately think of software and apps. But there's another field with huge disruptive potential that is just waiting to be tapped into by would-be start-up founders with smart ideas: photonics. From laser-based optical microphones and industrial robots equipped with sensor systems right through to light-based fluorescence microscopy and intelligent lighting concepts for the smart cities of the future, photonics is a gold mine for entrepreneurs.

Go for the light

As far as I know, no start-up has yet emerged from the idea behind the gesture-controlled holograms Leonard showed Penny, even though it has such amazing potential. But a few episodes later, Leonard's colleagues really do found a start-up to commercialize a groundbreaking gyroscope that uses quantum effects to pinpoint a location in space with unfailing precision. Even NASA ends up calling the gang of physicists to find out more about their invention. Obviously the gyroscope isn't a laser application, but once again I would bet ten to one that it couldn't exist without laser technology. So the prospects look good for some chilling out in the cafeteria once the demonstration is over□!□

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