Professor Christopher Barty is pushing cancer treatment into the future

The UCI physicist is developing a machine that can find and treat cancer anywhere in the human body.
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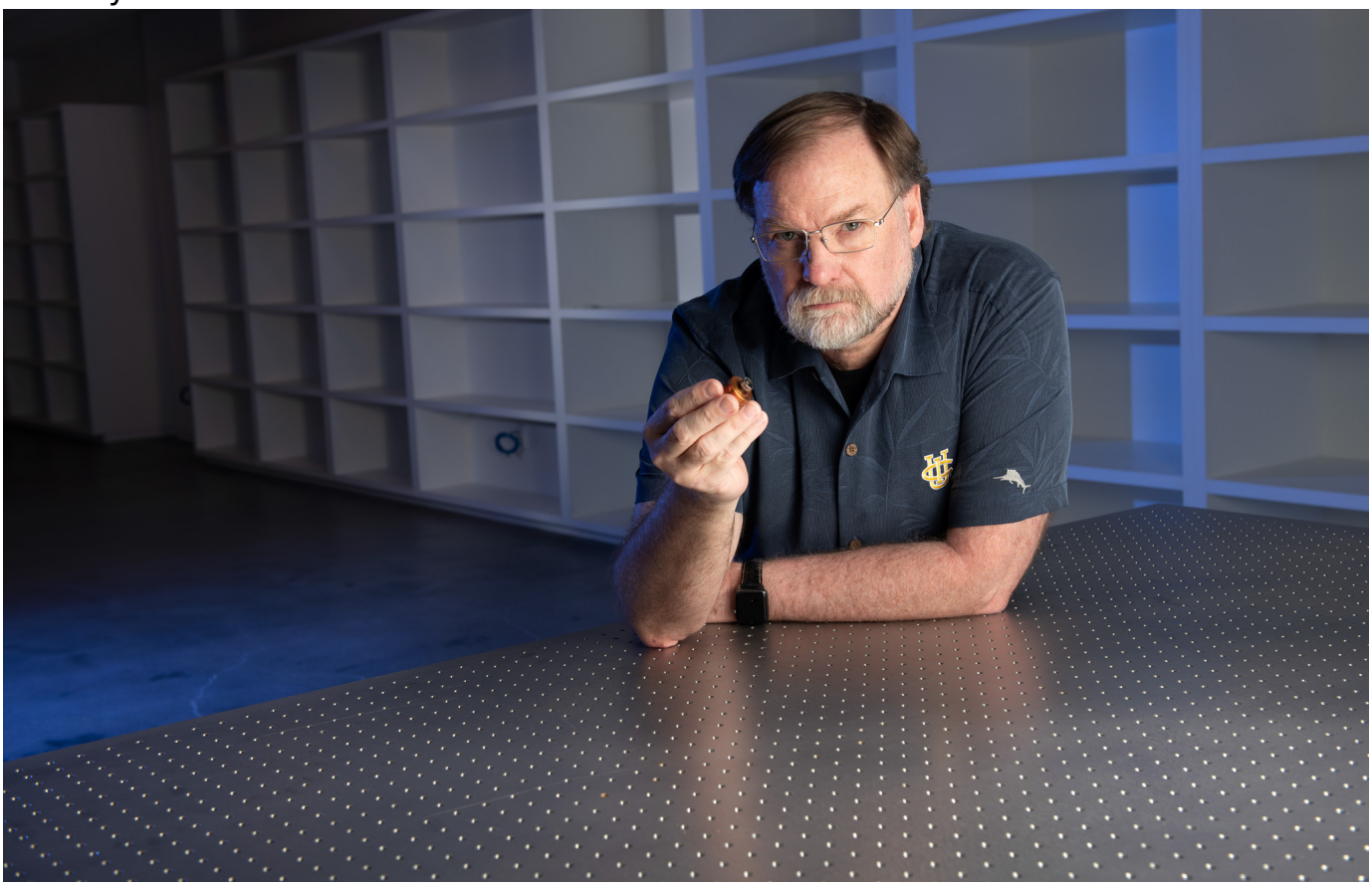

Professor Christopher Barty of the UC Irvine Department of Physics & Astronomy.

Picture Credit:
Steve Zylius / UCI

Imagine a machine that can selectively image cancer in the body and also eliminate that cancer while minimizing damage to any surrounding tissue. It may sound

fictional, but Lumitron Technologies, a company housed in the UCI Research Park and co-founded by Professor Christopher Barty of the UC Irvine Department of Physics & Astronomy, is developing a novel X-ray and electron beam machine called HyperVIEW™ that may soon do just that. “The machine has now generated electron beams that can be used to treat cancer anywhere in the human body and X-ray beams that follow the same path as the electrons that can image cancer at 100 times beyond the resolution of conventional clinical systems,” said Barty. “The holy grail is that ultimately you will have the ability to guide your cancer treatment in ways that nobody’s ever been able to do before.” HyperVIEW™ is a fourth-generation, laser-Compton X-ray technology Barty started developing when he was a scientist at Lawrence Livermore National Laboratory. HyperVIEW™ X-rays will “allow you to image soft tissues at potentially cellular levels, something that has only ever been done at billion-dollar synchrotron facilities” Barty said, which means Lumitron’s technology could one day both track and treat cancer at the cellular level in the human body. The company plans to have FDA approval for initial, precision cancer imaging applications by late 2025 and will move HyperVIEW™ to pre-clinical cancer treatment studies late this summer. “With this technology, we may eliminate the need to ever remove a breast or prostate again,” said Barty.

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