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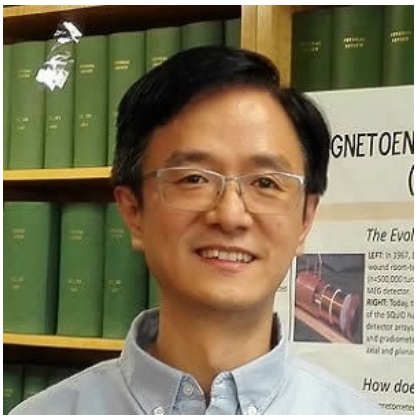
BIGLITE - A Novel Multifunctional Imaging Platform



A multidisciplinary project led by physicists from the University of Texas at Arlington, the University of Texas Southwestern Medical Center in Dallas and the University of Texas MD Anderson Cancer Center in Houston has been designed to develop a novel multifunctional platform that will integrate imaging and photo-induced cancer therapy in a single, portable device. The project is titled "Boosting photo-induced cancer therapies through real-time image guidance."

Photo-induced therapies are minimally invasive and only target cells at tumour sites. These therapies hold great promise as a treatment option along with surgery, radiation therapy and chemotherapy.

It is believed that a real-time, tumour-guided therapy device that has the ability to perform both imaging and therapy at the same time could improve the outcome of photo-induced therapies for patients.

"Presently, the simultaneous cancer imaging and treatment of these nanoparticles is not possible due to the lack of a multifunctional device," said Mingwu Jin, UTA assistant professor of physics. "Our idea is to take an image of the tumour and then use that image to guide the physician where to focus the laser to deliver the therapy, while minimising the damage to surrounding tissue."

During this project, the scientists will use positive-sensitive gas electron multiplier detector and spatiotemporal image processing to enable real-time image guided photo-induced therapies. Their goal is to develop a multifunctional device which they plan to call Beta Image Guided Light-Induced Therapeutic dEvice or BIGLITE.

The project team is confident tht BIGLITE can help improve the efficacy and safety of photo-induced therapies and can also shorten treatment time for patients. BIGLITE will use a seek and treat strategy and could prove to be a minimally invasive and effective treatment option for a broad spectrum of cancers.

Source: University of Texas Arlington
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Published on : Wed, 10 Aug 2016

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