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**The effect of laser penetration depth on photothermal ablation of cancer cells by surface functionalized Fe<sub>3</sub>O<sub>4</sub>**

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Nanoparticle mediated photothermal ablation of cancerous tissue shows promising results and applicability as a highly efficacious treatment method. A majority of the photothermal work has been conducted with minimal attenuation of the laser before reaching the nanoparticles within surface seeded tumors *in-vivo* or through buffered media *in-vitro*, it is important to understand the effects of greater laser attenuation on photothermal efficacy mediated by changes in the scattering and absorption of the laser. Photothermal efficacy using a near infrared (NIR) 785 nm laser irradiating polystyrene (PS) stabilized magnetite (Fe<sub>3</sub>O<sub>4</sub>) nanoparticles (PS-Fe<sub>3</sub>O<sub>4</sub>) is examined on MDA-MB-231 human mammary gland adenocarcinoma *in-vitro*. Agarose gel columns of various heights were created to simulate soft tissue and subsequently used for NIR laser attenuation.

### Biography

Donglu Shi received his PhD in Engineering from the University of Massachusetts at Amherst. Upon graduation, he worked at Argonne National Laboratory for 8 years as a Staff Scientist carrying out research in the field of Electronic Materials. He is currently the Chair of the Materials Science and Engineering Program at University of Cincinnati. He is also an Adjunct Professor at the Institute for Biomedical Engineering and Nano Science at Tongji School of Medicine. He has published 270 SCI papers with an h-index of 46.

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