

A Fiber Optic Ultrasound Transducer for Biomedical Ultrasound Imaging Applications

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Abstract:

This poster presents the design, fabrication and characterization of a fiber optic ultrasound transducer based on photoacoustic (PA) ultrasound generation principle for biomedical ultrasound imaging applications. A novel material, gold nanocomposite, was synthesized by directly reducing gold nanoparticles within polydimethylsiloxane (PDMS) through a one-pot protocol. A chicken wing was used as the biomedical ultrasound imaging target. The fiber optic ultrasound transducer was fabricated by coating the gold nanocomposite on the tip of an optical fiber. A hydrophone was used as the fiber optic ultrasound receiver. The ultrasound images were obtained by scanning the transducer mechanically. This poster demonstrates the ultrasound imaging capability of the fiber optic ultrasound transducer by using a chicken wing target.