Jaydeep A. Gore, Noninvasive temperature estimation for hyperthermia using pulsed ultrasound, M. Tech. Thesis, Department of Electrical Engineering, Indian Institute of Technology Bombay, 2002.

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*Abstract* - Hyperthermia is the application of heat to target tissues, as a cancer treatment therapy. For its effectiveness, noninvasive monitoring of the tissue temperature is needed. Reported techniques for measurement of temperature using ultrasound use a number of transducers and involved signal processing. In this project, use of a single piezoelectric transducer for noninvasively estimating temperature of a particular layer in a medium using pulsed ultrasound is investigated. The transfer function of the layer is computed from the spectra of the echoes, from the front and the back interface of the layer, received by the transducer. Parameters obtained from the magnitude and the phase part of the transfer function are investigated with an objective to identify parameters that could be used to develop an instrumentation system for monitoring temperature noninvasively.