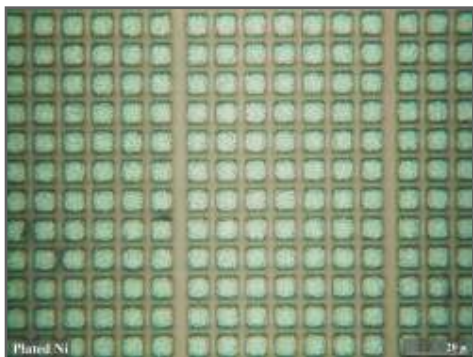


# Micromachined 35 MHz PC-MUT Array

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Array Pattern

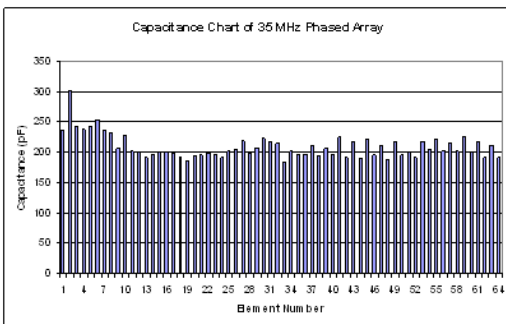


64-channel Array Assembly

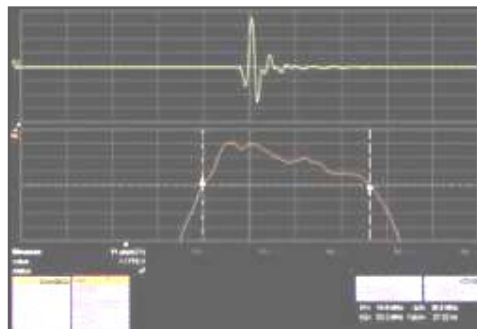
High frequency ultrasound phased array is desired for precise and rapid ultrasound Nondestructive Evaluation .

A deep reactive ion etching process was used for micromachining of bulk piezoelectrics to fabricate 1-3 PMN-PT single crystal/epoxy composites for HF ultrasound transducer arrays.

For the first time, a 64-channel, 35 MHz phased array was prototyped and characterized showing broad bandwidth (> 80%) and high sensitivity. This has significant impact on advancing the start-of-the-art phased arrays (< 20 MHz ) for sophisticated ultrasound nondestructive evaluation applications.



Capacitance of 64-elements



Impulse Response

Penn State Site



High-aspect ratio reactive ion etching of piezoelectric oxides enables new high frequency phased array ultrasound transducers with broad bandwidth.