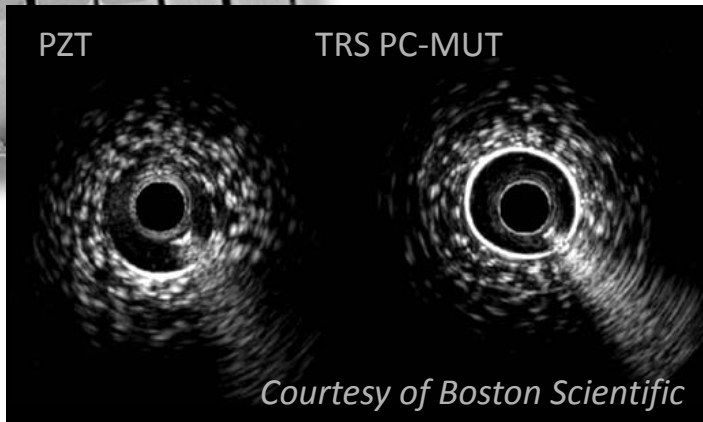
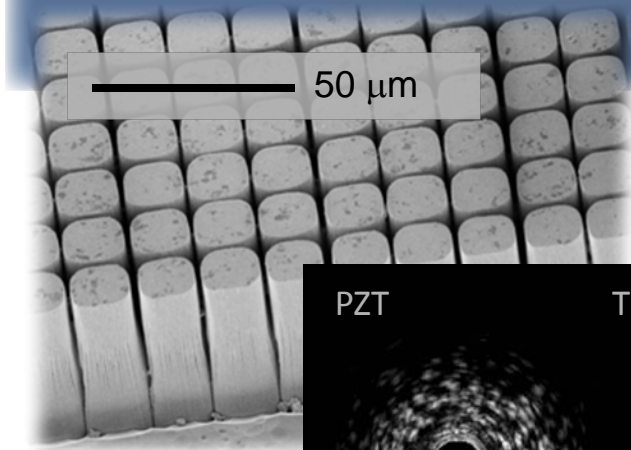
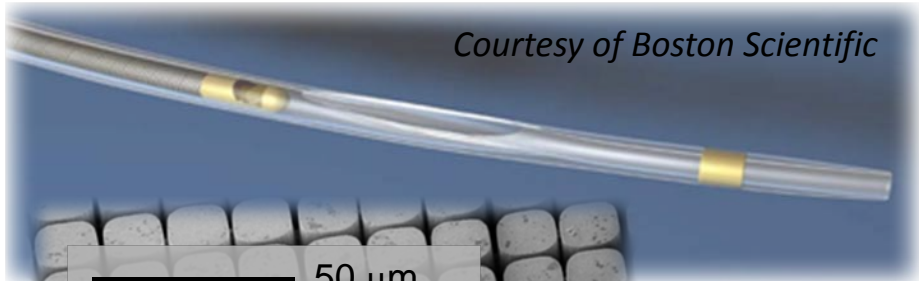


High-Frequency Biomedical Ultrasound

Xiaoning Jiang and Wes Hackenberger, *TRS Technologies, Inc.*, State College, PA.



40 MHz PC-MUT
IVUS has 2x the
bandwidth and
sensitivity of PZT

The NNIN is being used for micromachining bulk piezoelectrics to fabricate micron-scale high-aspect ratio 2-2 and 1-3 PMN-PT single crystal/epoxy composites for high frequency ultrasound transducers used for *medical imaging* and *industrial non-destructive evaluation*.

The electromechanical coupling coefficients of the composites are > 0.7 at 20-60 MHz. Transducers fabricated using these composites have unprecedented performance and are being commercialized for next generation coronary intravascular ultrasound (IVUS) imaging catheters.

Patterning and reactive ion etching of micron-scale high-aspect ratio complex oxide materials enables higher resolution ultrasound.

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